MAGNASCAN 626/636/646

Operator's Manual
6500-8690-04A

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CAUTION

Failure to comply with cautions and some specifications given in this manual, such as those concerned with environmental requirements, may result in damage to the equipment. Failure to comply with some lighting and associated environmental specifications may result in failure to produce work to the expected quality.

WARNING

This equipment generates, uses and can radiate Radio Frequency Energy and, if not installed and used in accordance with the instructions manual, may cause interference to Radio Communications. It has been tested and found to comply with the limits for a Class A Computing Device pursuant to sub–part J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a Residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Regulations and standards stipulated by the appropriate authorities in the United Kingdom are referred to throughout this document. Users in other countries must identify and comply with the regulations and standards stipulated by the equivalent authorities operating in those countries.

PREFACE

This manual describes the operation of the 626, 636 and 646 range of scanners, with software version V9.32 installed. SDT/Studio HSI procedures are described for SDT software version V9.72 and HSI software version V1.03.

ASSOCIATED DOCUMENTS

6X6/Sirius Pre-Installation Manual 6500-9910
626/636/646 IE/M Operator's Reference Guide 6500-8700
Quickview Operator's Manual 6500-9250
Quickview 2 Operator's Manual 6500-9270
Magnascan Solo Operator's Manual 6700-2930
Magnascan Duet Operator's Manual 6700-2910
Magnascan 626/636/646 DS Operator's Manual 6500-0980
Textran Operator's Manual 6500-5070
Polychromatic Colour Removal User's Guide 6500-3530
Magnascan 636 EF/MF Operator's Manual 6500-8710
Galan Operator's Manual 6700-0210

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Register Marks, Scanner Generated Vignettes, Step And Repeat, Image Offset With Border (626F, 636F and 646 only), Limit, Line Mode, Text In Borders, Expose, Stand Alone Expose Units.

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GENERAL DESCRIPTION

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CHAPTER 1

GENERAL DESCRIPTION

1.1 INTRODUCTION

The Magnascan system comprises separate analyse and expose scanner units, together with peripheral equipment such as film punch, film loading table, etc..

Transmission copy or reflection copy can be scanned on the analyse unit to produce up to four separations in one scan. 626 models produce up to two separations per scan; 636 and 646 models produce up to four separations per scan. Auto Rescan, Expose Hold and Film Save facilities allow multiple exposures on one sheet of film, using two or more scans. The order of separations is fully interchangeable in all formats.

The use of Electronic Dot Generation (EDG) eliminates the need of expensive contact screens to produce half-tone separations. EDG gives perfect prediction and maximum light for exposure. The operator can choose from four dot shapes, positive or negative dots, a wide range of screen rulings and a wide range of enlargement values.

1.2 SYSTEM CONFIGURATIONS

The Magnascan system is designed on modular principles to give maximum flexibility of operation and easy enhancement of capabilities. The minimum 626/636 IE/M system consists of a 626/636 analyse unit together with either an E or M expose unit. These are connected by 10 metre ribbon cables. The analyse unit can be operated in daylight or darkroom. The expose unit must only be operated in a darkroom.

The operation of following options and configurations are described within this manual.

- The 646 system consists of a 636, upgraded with a Scanner Data Terminal. The SDT and its upgrades are no longer available as an option, except as a part of an output scan station, but operation is still described within this manual. The SDT provides enhanced job-data storage and set-up facilities, including Magnaplan and Multran. With options it also provides an interface for 300 Mbyte removable-disk drives, fixed Winchester disk-drives or Studio Systems.
- The Studio HSI upgrade can be fitted to 636 scanners. It provides the operational capability of enhanced SDTs except that it cannot interface with 300 Mbyte removable-disk drives, which are themselves no longer available.
- An enhanced scanner, the WISS, provides an input to electronic page-composition systems.
- An output for electronic page-composition systems is provided by the WESS and WMSS.

The following options and configurations are described in supplementary manuals:

- Enhanced scanner units and Studio Systems may be interconnected via a Galan ring. The Galan version of the input scan station is the GISS. The Galan versions of the output scan station are the GESS and GMSS.
- Solo is a stand-alone off-line workstation.
- Duet consists of two analyse units linked to one expose unit.
- Enhanced text handling is possible with Textran and Textran Sprint upgrades.

- 636 EF and MF scanners include a floppy drive, mounted within the analyse unit. These scanners are no longer available but operating instructions are still provided.
- An upgrade to a 626, 636 or 646DS allows scanners to be used to de-screen positive, screened originals.

1.3 OPERATOR FEATURES

Magnascan software provides a user with a broad range of facilities, which are dealt with fully in Chapters 5 to 7. Features of particular interest are highlighted below.

1.3.1 Polychromatic Colour Removal (PCR)

This function enables separations to be provided by the scanner whereby the third colour content is replaced by black. All predicted densities and dot percentages are shown in the normal 4-colour mode. The amount of clean out of the third colour can be adjusted and a black compensation term is provided as in the normal UCR function. The PCR function is called for only at the expose time.

1.3.2 Pastel Colour Boost

This function enables non-saturated colours to have extra colour correction applied to them. The pastel colour boost function controls the degree of boost and also the density point of the peak boost value. It is also possible to apply pastel correction colour selectively.

1.3.3 Flexible USM

USM facilities on the 6X6 scanner range include the following items:

1. A smoothing control for areas of low detail contrast and also for areas of high density.
2. A facility enabling any three fringe signals to be applied to any of the colour channels, including the black channel, to improve the appearance of an original. For example, a magenta fringe applied to the cyan colour channel improves the appearance of a flat 'blue sky' type of original.
3. Control over fringe characteristics, which allow a sharpness fringe to be generated on the black printer.

1.3.4 Scanner-Generated Vignettes

Both horizontal and vertical scanner-generated vignettes can be output from the Expose unit. These can be produced up to maximum dimensions and are available for all basic formats except 3-up.

1.3.5 Step and Repeat

The Step and Repeat function enables multiple exposures of an image to be made in each format size. The function can be used with manual formatting or Autoformat. It can also be used in combination with Multran or Film Save.

1.3.6 Film Save Facility

This additional facility enables greatest use to be made of the output film. If necessary, exposures can be selected alternately on the upper and lower halves of the film. Various mixtures of format and upper/lower exposure are possible e.g. exposures in 4-up format on the upper half of the film can be mixed with exposures in 2-up format on the lower half of the film, where applicable.

1.3.7 Magnaplan

In a 636 scanner with Studio HSI, or a 646 system the Magnaplan programme allows rules and borders to be generated around tint blocks and pictures. Magnaplan layouts and file directories can be printed to hard copy via the dot matrix printer. A Help file provides detailed operator information and file directories.

1.3.8 Multran

Multran allows several transparencies to be mounted on an analyse cylinder and scanned to film using one set-up sequence. A different Jobfile can be specified for each exposure.

1.4 ANALYSE UNIT

1.4.1 Operating Principles

A clear Perspex cylinder, carrying the transmission or reflection copy on its surface, is rotated at constant speed by a motor. The copy is scanned by a small spot of light which moves at constant speed parallel to the axis of the cylinder. The scanning spot is produced by the analyse optical system. The carriage supports the complete analyse optics and the input electronics. The carriage is moved at constant speed for a given scan rate along a leadscrew by another motor.

A precise servo control system enables the carriage to be traversed at a slow speed or at a fast speed in either direction. The carriage can be traversed to a pre-determined position. The limits of carriage traverse are set by micro-switches which are mounted close behind the leadscrew.

The leadscrew and cylinder run in ball bearings which are housed in bearing blocks. The bearing blocks are screwed to the cast iron beam.

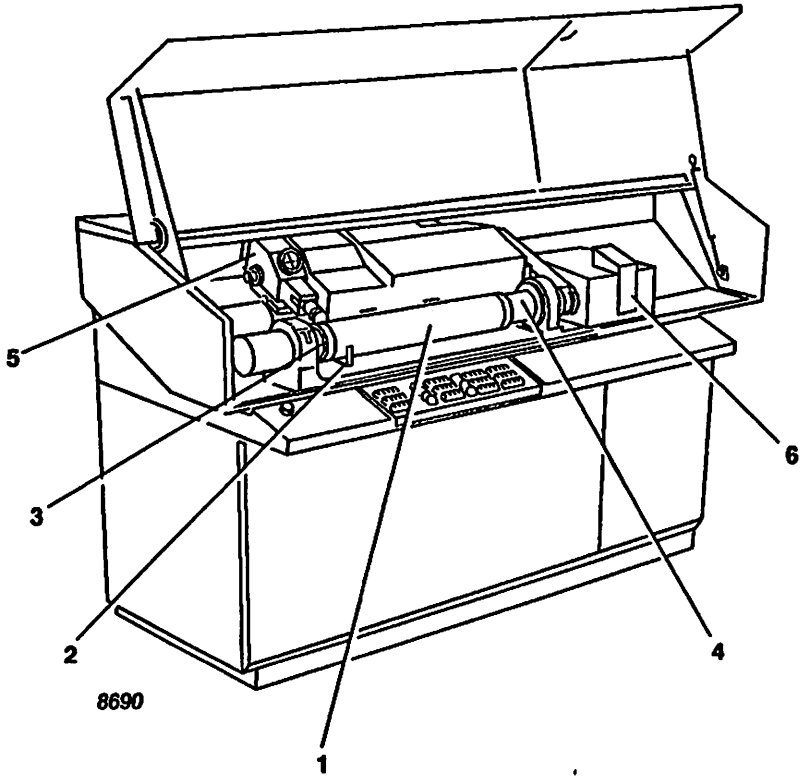
The right-hand cylinder bearing block can be moved away from the other block to enable insertion or removal of the cylinder. The bearing block is moved by a toggle lever mechanism. This mechanism is actuated by movement of the carriage near the right-hand limit of traverse. When the carriage moves in the opposite direction, the bearing block is returned to its operating position by a compression spring. The beam is supported by a strong steel frame. The covers are attached by screws or lugs to the frame. Power supplies and printed circuit boards are supported within the frame.

1.4.2 Analyse Cylinders

There are two interchangeable cylinders, one large and one small. The cylinders will take originals to a maximum size of 510 x 635 mm (large) or 510 x 317.5 (small). Enlargement ranges from 20 to 2000% are available, depending on the expose unit (E or M), and analyse drum. See Section 10.1 for full details of enlargement capability. Copy is mounted on the cylinder using a loading table.

Each cylinder is fitted onto the cylinder hub by a small slot cut at the end of the cylinder. When a cylinder is fitted, a locating ball fitted to the left-hand hub engages the slot at that end of the cylinder.

The cylinder rests have two operating positions, one for each cylinder. In the upright position, they provide support for the smaller cylinder when loading. In the lowered position they perform the same function for the larger cylinder. The rests are mechanically linked so that raising one will raise the other.



1 CYLINDER
2 CYLINDER RESTS
3 FIXED HUB
4 MOVABLE HUB
5 ANALYSE HEAD
6 LAMPHOUSE

Figure 1.1 Analyse Unit

By the left-hand hub, behind and above the centre, there is a sensor mounted in the bearing block. This sensor detects the presence of the large cylinder. If the smaller cylinder is fitted the machine will not release it unless the cylinder rests are upright. Similarly, if no cylinder is fitted, the carriage will not traverse unless the cylinder rests are upright. If you want to traverse the carriage in order to change the centre optics lens, raise the cylinder rests.

The cylinder cannot be released accidentally whilst it is rotating.

1.4.3 Lamphouse

The rectangular box at the right-hand end of the analyse unit contains the xenon lamp. This is a stabilized 150 W xenon lamp which emits an intense white light. Safety precautions must be taken before changing the lamp. For greater stability the lamp is best left switched on as much as possible, e.g. overnight and at weekends.

The analyse photomultipliers are balanced to ensure neutrality of neutral input.

Lenses, prisms, mirrors and beamsplitters produce three light beams for use in:

1. Scanning transmission copy.
2. Scanning reflection copy.
3. Viewing transmission copy.

The required beam is selected by movement of vanes or mirrors, attached to solenoids.

The **transmission copy** beam travels from the lamphouse, along the centre optics tube to a prism at the end. The prism reflects the beam through 90° so that it passes through the Perspex analyse cylinder and the transparency. Knobs at the right-hand side of the lamphouse provide adjustments for the transmission copy beam. A neutral filter selection knob is located at the right-hand side of the lamphouse. The neutral density filters are used in conjunction with apertures in the analyse head so as to maintain the required light levels on the photomultipliers.

The **reflection copy** beam travels along a fibre optics light guide which splits into three light guides. The guides are fixed at their ends so that the three light beams converge to produce a fine spot of light on the

reflection copy. This arrangement avoids direct reflection of light from the reflection copy into the analyse lens. Knobs at the left-hand side of the lamphouse provide adjustments for the reflection copy beam.

The viewing beam travels along a Perspex light guide to a diffuser at the end of the centre optics tube. This results in a general illumination of the transmission copy.

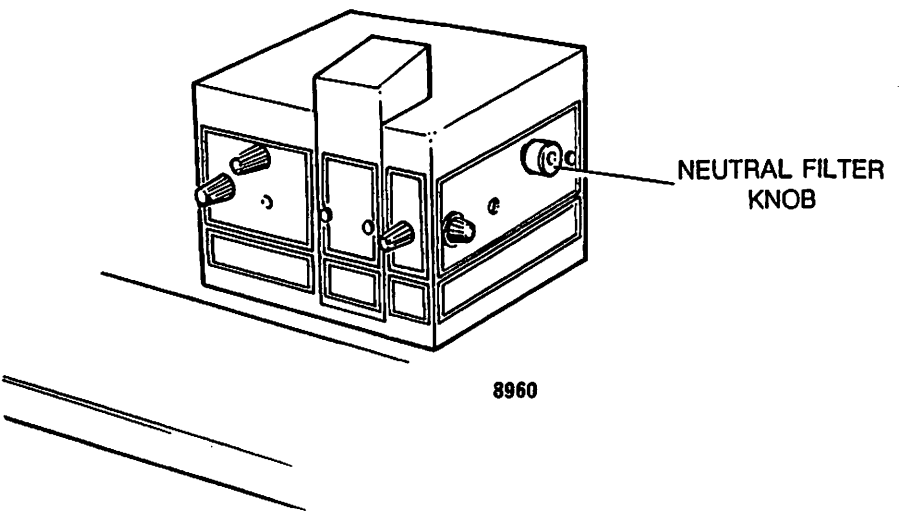


Figure 1.2 Lamphouse

1.4.4 Centre Optics Tube

The centre optics tube moves to and fro inside the analyse cylinder, when the carriage traverse. There are two centre optics lenses, (scanning lenses), one for the large cylinder, the other for the small cylinder. The centre optics lens focuses a fine spot of light onto the transparency. The required lens is plugged into the end of the tube, except for scanning reflection copy. In this case a blanking plug is used to prevent unwanted transmission of light through the copy.

The centre optics tube provides illumination for a transparency. When the View mode is selected the centre optics tube provides background illumination at a reduced intensity. This enables viewing the transparency, over a larger area than is used for scanning.

1.4.5 Analyse Head

The illuminated spot on the original is at the focus of the analyse lens, which is mounted in the analyse head. Light passes through this lens and is reflected through 90° by a prism onto the dichroic assembly. The dichroic assembly separates the red, green and blue components of the light, and reflects these onto three photomultipliers.

The analyse head is the scanning eye of the analyse unit. The analyse lens is mounted in a metal tube which can be set in two positions, to suit the analyse cylinder in use. The tube is secured in position by a pin and is released using the lens release button. Fine focus is made using the fine-focus adjuster.

The knob on the top of the analyse head, and the one on the front left-hand side of the head are centering controls, used to align the head with the light coming through the transparency.

The aperture knob, at the rear left-hand side of the analyse head, is used to select the correct size of scanning light spot to suit the enlargement required.

When the View mode is selected, a movable mirror reflects a magnified image of the scanned area of the original onto a ground glass screen.

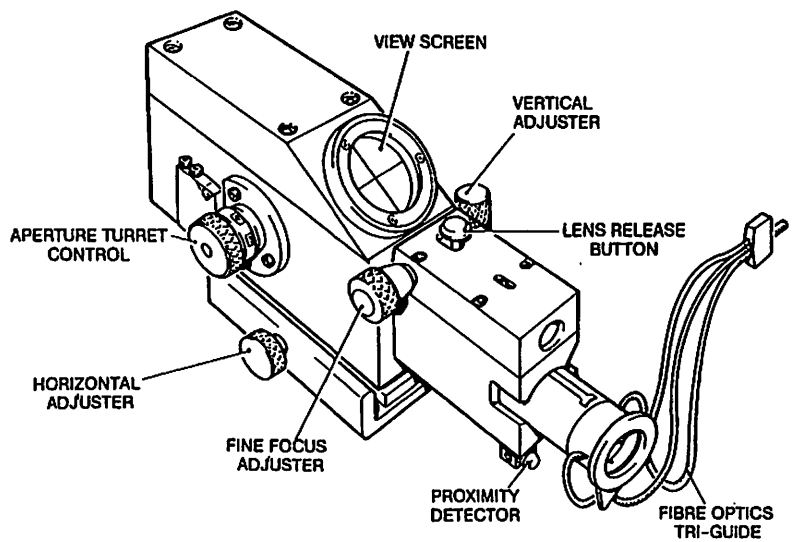


Figure 1.3 Analyse Head

1.4.6 Signal Flow

Each photomultiplier produces a small electric current which is proportional to the amount of red, green or blue light falling on it. Electronic circuits convert these currents to three digital signals, which represent the cyan, magenta and yellow components of the light. The digital signals are processed by other electronic circuits as required for detail enhancement, under-colour removal, colour correction, etc.

The fully processed digital signals pass along ribbon cables to the expose unit, (if used).

1.5 EXPOSE UNIT

1.5.1 General

Magnascan expose units are similar in most respects, the main difference being that the M units have a larger cylinder than the E units. Maximum image sizes are 700 mm x 635 mm for E units and 830 mm x 1030 mm for M units.

An opaque aluminium cylinder, carrying the output film on its surface, is rotated at constant speed by a motor. The film is exposed by a small spot of light which moves at a constant speed parallel to the axis of the cylinder. The exposing spot is produced by a laser which is mounted on a carriage. The expose optics and electronics are supported by the carriage. The carriage is moved at constant speed along a leadscrew by another motor.

The leadscrew and cylinder run in ball bearings which are housed in bearing blocks. The bearing blocks are screwed to the cast iron beam.

A precise servo control system enables the carriage to be traversed at a slow speed or at a fast speed in either direction. The carriage can be traversed to a pre-determined position. The limits of carriage traverse are set by microswitches which are mounted close behind the leadscrew.

The E model beam, frame and skins are similar to those of the analyse unit. The M model beam, frame and skins are larger than those of the analyse unit.

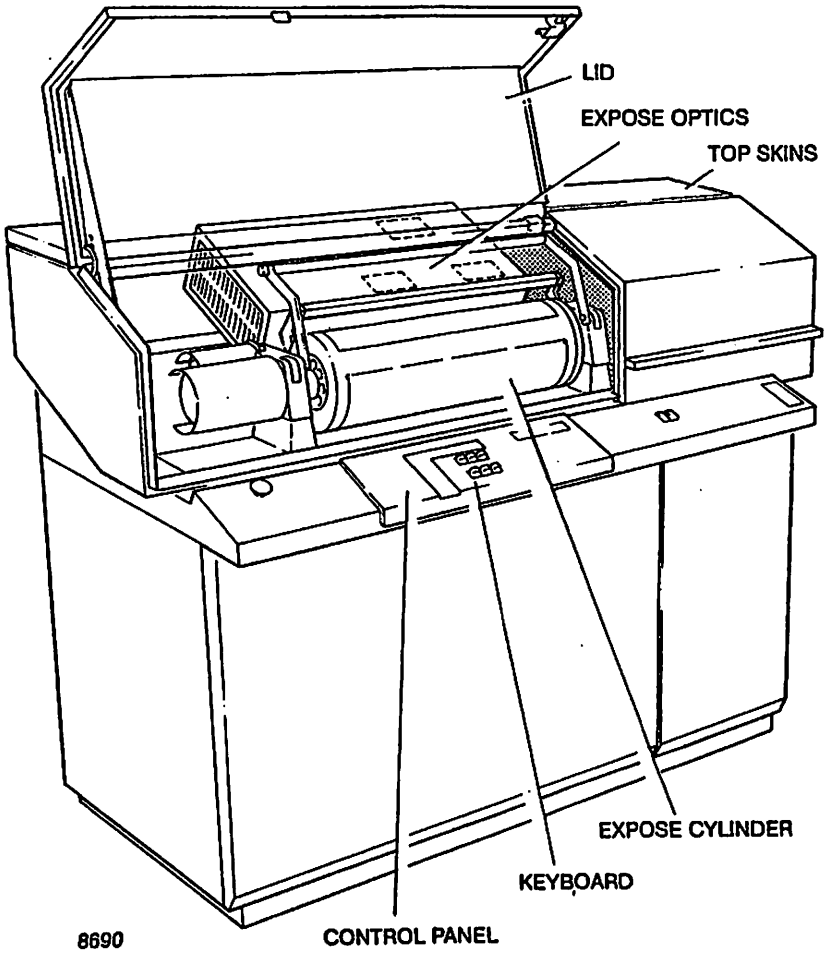


Figure 1.4 Magnascan 626E, 636E and 646E Expose Unit

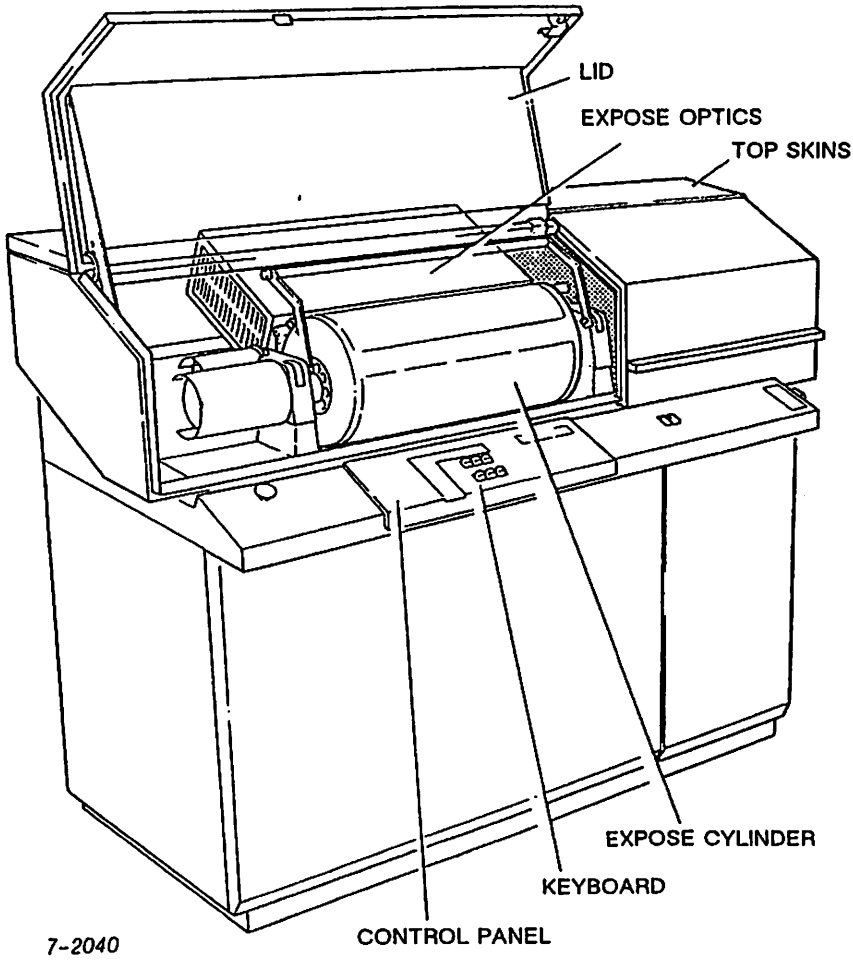


Figure 1.5 Magnascan 626M, 636M and 646M Expose Unit

1.5.2 Expose Cylinder

The hollow expose cylinder is made of anodized aluminium. It is connected by tubing to a vacuum pump so that a vacuum can be produced in the grooves cut into the cylinder surface. Register pins on the cylinder locate the punched output film correctly. Correct register between separations made on different films is thus maintained. The M cylinder is larger than the E cylinder.

Mounted with the cylinder is a film-loading bar and a loading assembly. The film-loading bar is used to hold the trailing edge of the film away from the scanner during loading. Two types of loading assemblies are used expose units. The E unit is fitted with a brush-loading assembly while on M units a pressure-roller assembly is fitted. The brush or roller-loading assembly is used to press the film against the cylinder so that it will be held flat by the vacuum. On brush-loading assemblies a mechanical linkage draws the brush into contact with the cylinder when the bar is brought forward into the film loading position. On pressure roller assemblies the roller is lowered pneumatically when the **Load film** button is pressed.

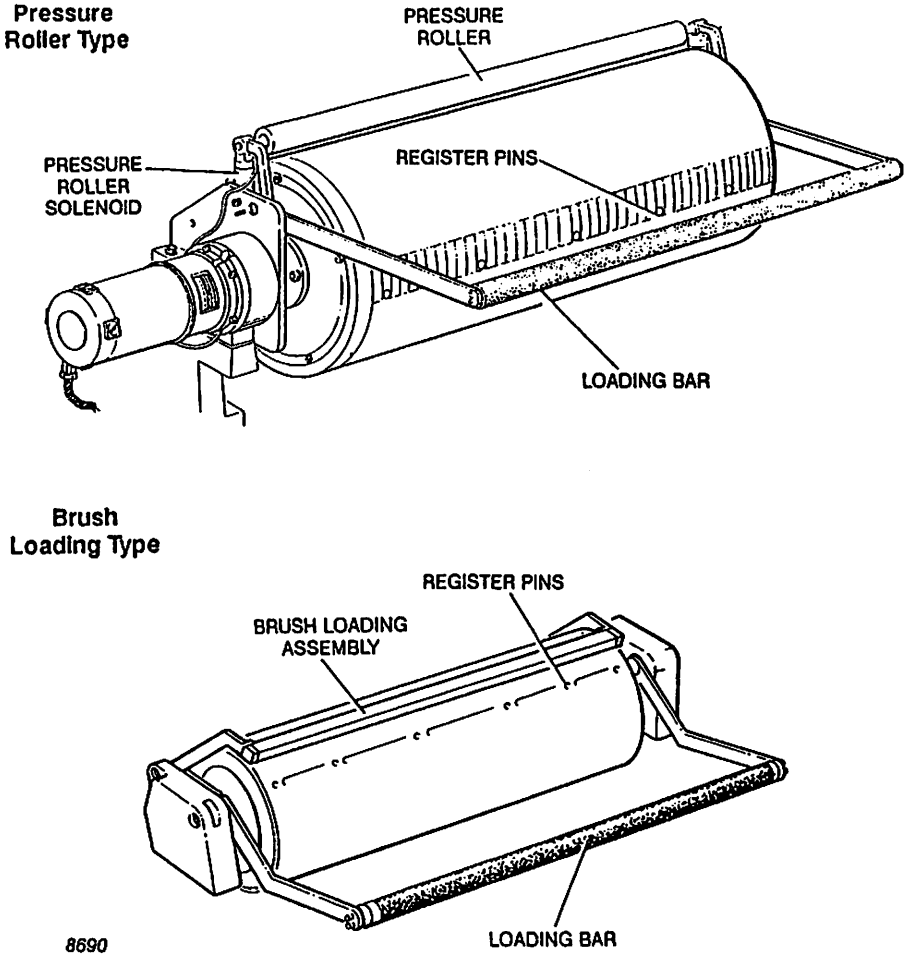


Figure 1.6 Expose Cylinder

1.5.3 Optical System

The expose optics assembly is mounted on the carriage. It is enclosed by a rectangular cover.

WARNING

This cover must not be removed by the operator.

The light source is a 15 mW argon laser, which emits a very fine intense beam of coherent light. A closed-loop photoelectric system controls the laser power supply to maintain a constant light output. A prism system splits the light into six smaller beams. The laser light then passes through a 6-channel polarizing modulator which varies the intensity of the light according to the output picture signal. The light is imaged by lenses to form a fine spot on the output film. The spot shape is controlled by the beam computer, to give round, square, elliptical dots, as selected by the operator.

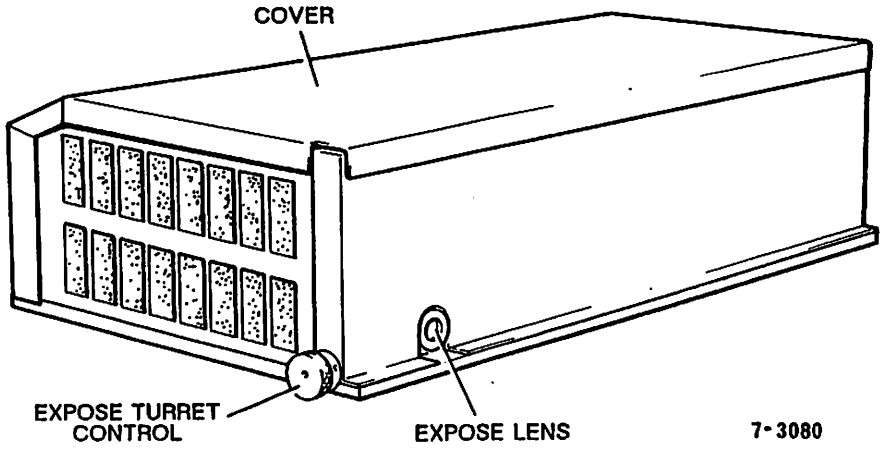


Figure 1.7 Expose Optics Assembly

1.5.4 Expose Turret

The size of the spot on the output film is selected by manual rotation of a 3-position expose turret in the light path. The expose turret position is selected in accordance with one of three scan rates determined by the operator on the analyse unit. The turret wheel is turned by a knob at the left-hand side of the expose optics.

1.5.5 Laser

The laser is cooled by a powerful fan which draws air in through filters at both ends of the cover. For greater stability the laser should be left on as much as possible. When the laser is not in use, it is automatically kept in a Standby mode. The power supply is adjusted to maintain a low voltage on the laser, thus prolonging its life.

1.5.6 Signal Flow

The digital signals enter the expose unit along ribbon cables. They convey picture data which is related to the cyan, yellow and magenta content of each small part of the original ('picture element'). This data takes account of editing done by the operator. In addition, data related to the required black separation is included in the signals.

Further processing of the signals take place in the expose unit. Grey balance, printing curve and density limits are set.

The picture signals are converted from digital to analogue form and used to modulate the laser beam which exposes the separations.

1.6 ANCILLARY EQUIPMENT

1.6.1 Loading Table

Both transparencies and stripped reflection copy are mounted on cylinders using the loading table (7503-2420). The loading table should be fitted over a light table so that cylinders and transparencies may be illuminated from below. The rollers are kept on a storage shaft that fits in grooves at the back of the mounting table, next to the grooves for the roller shaft.

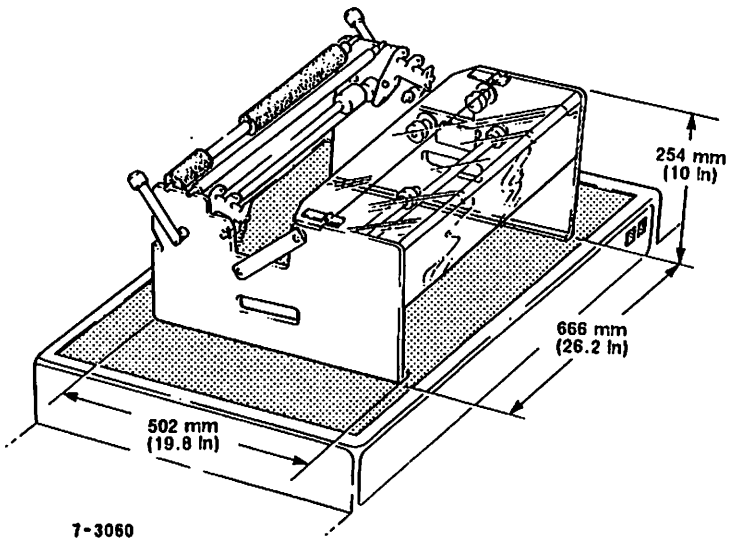


Figure 1.8 Loading Table

1.6.2 Film Punch

The film punch is used to punch a round hole and slots along the top edge of the film, to match the locating pins on the expose cylinder. Thus film positioning can be accurately repeated, giving perfectly registered colour separations.

Although provision is made for punching two sizes of film, i.e. lith film and full size contone film, only the lith film setting should be used. Check that three pins 'P' are in the 'Down' position and that the left-hand edge stop is assembled with the 'A' LITH side facing towards the film. The left-hand edge stop can very easily be removed by unscrewing one retaining screw.

CAUTION

Only punch one film at a time.

Always ensure that the film is laying flat on the punch base before the punch is operated.

Colour-to-colour misregister will otherwise occur.

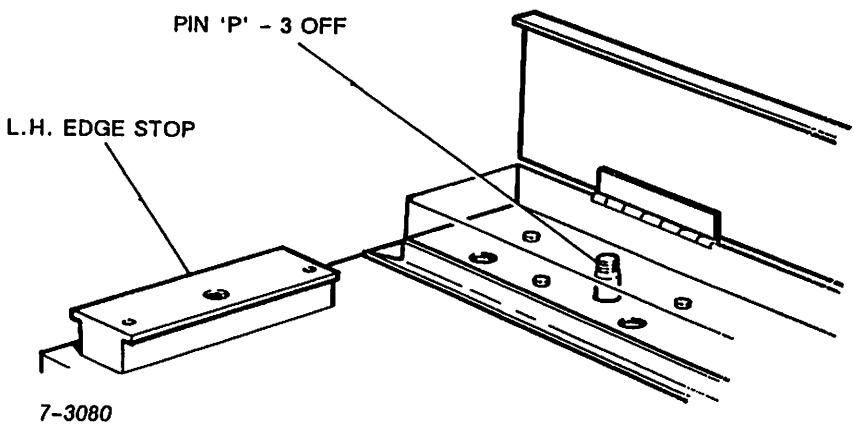


Figure 1.9 Film Punch

1.6.3 Repro Pack

The Repro Pack is a folder containing transmission and reflection copy subjects, grey scales, etc.. The Pack is designed for use as a standard for scanner reproduction. Instructions for use are included in the Pack.

1.6.4 Miscellaneous Items

An operator's pack is supplied with each scanner. It consists of consumable items, safety equipment and tools. These items can be ordered separately from Crosfield and have been listed with part numbers in Table 1.1.

The table includes several additional items which are not supplied with the operator's pack. Those items marked with an * are available from Crosfield but are subject to fire regulations and cannot be sent by air. Those marked with a + are only required for 646 scanners and certain options.

Table 1.1 Miscellaneous Items Available from Crosfield

Description	Part No.
Printed Rule	5511-4280
Xenon Lamp, Top Lead Assembly	7503-0940
Scanner Power Cable	7503-1560
Cylinder Cleaning Tool	7503-2410
Can Of Maccurat 32 Oil	7503-6170
Floppy Disk, SSA10, Data	7504-9120+
Optics Cleaning Fluid	7504-9670*
Double Density Floppy, 8 Inch, ½ Height	7510-0460+
Xenon Lamp, 150 W, Gas Filled	7513-8540
Feint-ruled Book, 10 x 8	9900-0006
Sellotape, Transparent	9900-0147
Fuse, 3 A, 6.3 x 32 mm, Fast Acting	9928-5068
Disk Case, Floppy, 8 Inch	9944-1180+
Hexagonal Allen Key	9990-3411
6 Inch, Slip-joint Pliers	9990-4013
Static Master 3t 125	9990-5090
Oil Can With Brass Spout	9990-5545
Tube, White Petroleum Jelly	9996-2068
Anti-static Cleaner, 340 ml	9996-2511*
Anchor Film Cleaner	9996-3041*
Fanfold Paper, 241 mm Wide	9996-3813+
Liquid Paraffin, 200 cc	9996-4088*
Sellotape Dispenser	9996-4096
Tissues,150 Sheets, 2 Ply	9996-5080
Cotton Buds	9996-5082
Bottle, Eye Dropper	9998-9065*
Head Band, S.500	9996-9349
Clear Visor, Type VW 95P	9998-9354
Protocol Register-pin	9998-9401
Gauntlets AA/5C	9998-9402
Peak x 50 Magnifier	9998-9618+
Printer Ribbon Cartridge (RX80, LX800, LX850)	9998-9686+
Printer Ribbon Cartridge (LX80, LX86)	9998-9938+

1.7 SCANNER DATA TERMINAL (646 only)

The Scanner Data Terminal (SDT) comprises the system computer and peripherals consisting of:

- VDU and keyboard.
- Text/image printer.
- Floppy disk unit.

An operator using the SDT may employ job set-up modes through the menus stored on disk. Additional menus are available on systems where Winchester drives, CDC disk drives or Galan options are available.

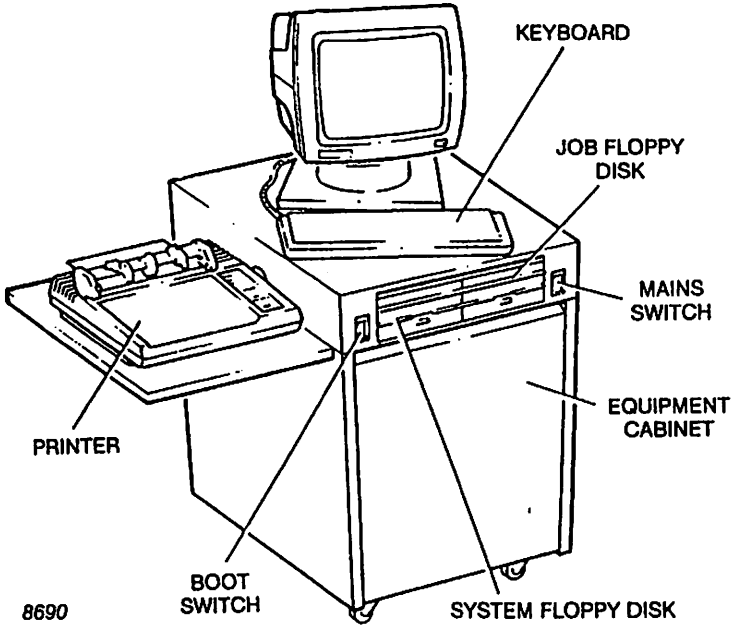


Figure 1.10 Scanner Data Terminal

1.7.1 Visual Display Unit (646 only)

The Visual Display Unit (VDU) is a combined monitor and keyboard. The VDU is used to enter and display information originating from the word processor. This information is fed to the system computer, processed and returned to the VDU for display. An operator handbook is supplied with this unit.

1.7.2 Text/Image Printer (646 only)

The Text/Image Printer produces hard-copy from the VDU screen upon demand. It can print text, illustrations, and graphics. An operator handbook is supplied with this unit.

1.7.3 Floppy Disk Unit

The floppy disk unit is a disk data storage system which uses double density 8-inch diameter disks. The earlier SDT units housed two drives, one for the system floppy and one for the Job data floppy. Now that the system software is held on a Winchester, only one drive is required.

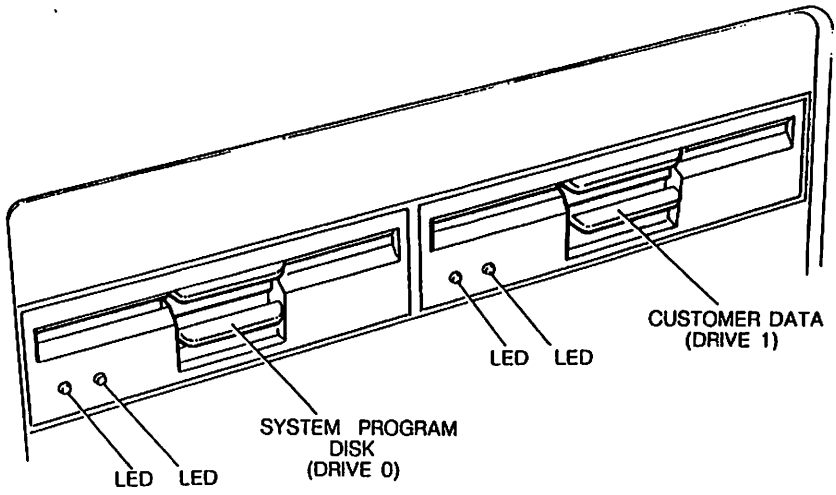


Figure 1.11 Floppy Disk Drive

1.8 STUDIO HSI UPGRADE

The Studio HSI upgrade consists of an electronics rack, a Winchester hard-disk memory, a VDU, and a keyboard. The rack is housed in the right-hand side of the analyse unit. A table is also supplied to support the VDU and keyboard.

The single floppy-disk drive fitted to earlier versions, i.e. SI/63, prevented Job file storage as the drive was required for the system disk. Since on Studio HSI the system software is held on the internal Winchester, the floppy-disk drive is free to be used for Job data storage. Studio HSI is now capable of performing all the functions of an enhanced SDT. Studio HSI now replaces the SDT in all configurations which include an analyse unit.

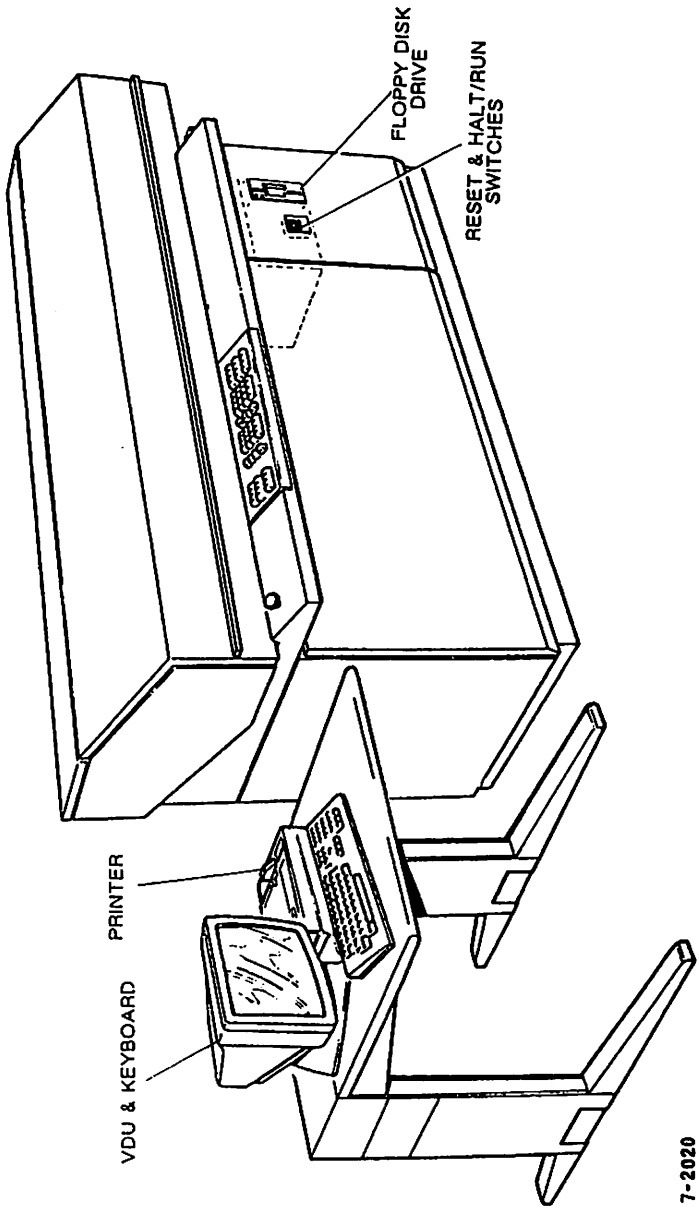


Figure 1.12 Studio HSI on an Analyse Unit

1.9 DISK DRIVES

A CDC disk drive unit uses removable magnetic disk packs as a data storage medium. This provides high-speed, high-density storage for image data. The operator accesses this unit via the SDT VDU and Keyboard. Up to two of these units may be configured in a scanning station.

Winchester disk units have replaced the 300 Mbyte removeable-disk units. A Winchester disk unit provides high-speed high-density storage for image data on fixed disk. The operator accesses the unit via the VDU and Keyboard. A scanning station can configure up to four Winchester disk units. Although part of a scanning station configuration, the Winchester disk unit resides in a File Manager cabinet of an associated Studio 800-type system. The Winchester may be configured as an alternative to removable (CDC) disk or in addition to it.

CHAPTER 2

SAFETY REQUIREMENTS

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CHAPTER 2

SAFETY REQUIREMENTS

2.1 HEALTH AND SAFETY AT WORK

All personnel are advised to familiarize themselves with any local or national legislation relating to health and safety at work. Particular attention should be given to those sections covering personal responsibility regarding safe working practices which must be strictly observed at all times.

This chapter explains the safety conventions used in this manual and highlights safety practices specific to this equipment.

2.1.1 Warnings and Cautions

There are two safety categories, namely WARNINGS and CAUTIONS.

1. WARNINGS are given for conditions which may endanger the safety of personnel.

WARNING

The instructions given in warnings must be followed precisely. They are given to avoid injury or death.

2. CAUTIONS are given for conditions which may cause damage to equipment or materials.

CAUTION

The instructions given in cautions must be followed to avoid damage to equipment or materials.

2.2 CLOTHING AND JEWELLERY

Do not wear clothing or jewellery which could be hazardous when in contact with any part of the equipment, or which could reflect laser light into an eye.

2.3 EQUIPMENT AND TOOLS

Use the tools and wear the protective clothing as may be recommended.

2.4 SITE SAFETY

2.4.1 Safety Devices

Ensure that all safety controls, such as brakes, interlocks, circuit brakes, indicators, covers, guards and warnings labels are present and functioning correctly, before handing over the equipment to the customer.

Unless essential for commissioning or servicing and under prescribed conditions, never override, negate or otherwise bypass safety controls, such as brakes, interlocks, circuit breakers, indicators, covers and guards.

2.4.2 Attention of Equipment

Never leave equipment unattended unless in a safe condition with respect to mechanical, optical, chemical, electrical or other hazards.

2.5 MECHANICAL SAFETY

The following basic precautions apply to the system, and also to the equipment with which it is used.

- Do not attempt to lift heavy equipment on your own. Obtain assistance from able-bodied persons or use suitable equipment as instructed in the manual.
- Always close equipment doors and access panels to prevent anyone colliding with them.
- Avoid leaving electrical cables trailing where anyone may trip over them.
- Make sure that mechanical servicing is undertaken only by properly authorized personnel.

WARNING

If both scanner lids are open and the left-hand lid is closed, the right-hand (pod) lid will close unaided, causing possible injury.

2.6 ELECTRICAL SAFETY

- Check mains cables regularly to ensure that they are not worn or damaged.
- Ensure that water and other liquids do not come into contact with the equipment.
- Do not attempt to operate the equipment when flammable or volatile substances are present in the atmosphere.
- Ensure that the correct type of fire extinguishers (BCF or CO_2) are present in the operating areas, and that they are regularly serviced.
- Ensure that electrical servicing is undertaken only by properly authorized personnel.

2.7 LASER SAFETY

2.7.1 General

1. Note the following warning:

WARNING

Never look directly into a laser beam.

The voltages in the laser circuits and power supplies are lethal. Exercise extreme caution.

Do not switch on the laser or attempt to do any alignment or adjustment to the optics unless you have been instructed on safe working with class 3b lasers.

2. The protective cover of the laser should always be in place during normal operation.

2.7.2 Safety Warnings

Safety warnings must at all times comply with local and national regulations.

When the laser is being serviced it is necessary to run with covers off and safety interlocks over-ridden. Under these circumstances only the Service Engineer should be in the scanner area. All other personnel should be warned of the hazard by:

- A laser warning notice attached to the door(s) leading to the scanner room. An example is shown in Figure 2.1.
- A red warning light, positioned above the door(s) leading to the scanner room, illuminated whenever there is a laser radiation hazard.

Local legislation may permit the following alternative:

- Isolation of the scanner by means of a curtain. The curtain must be opaque to red light and must extend from floor to a height of at least 2.1 m (84 in).
- Warnings placed where required to ensure that personnel are aware of the laser radiation hazard inside the curtained area. The notice shown in Figure 2.1 is recommended.

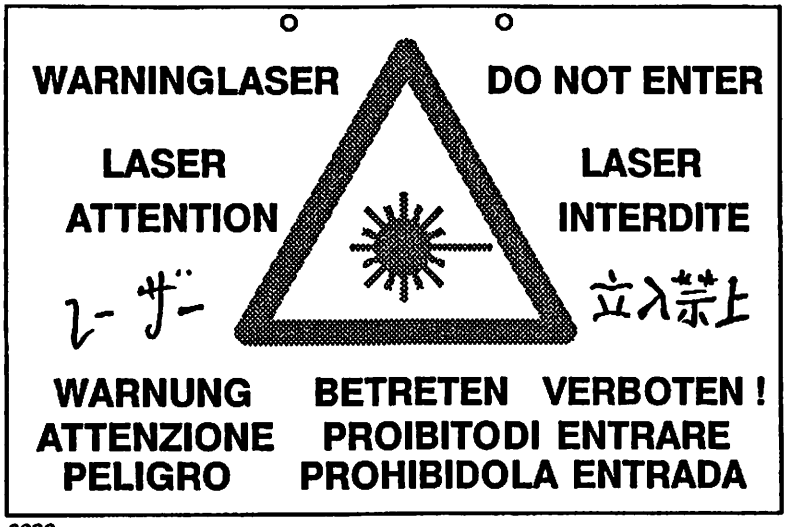

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Figure 2.1 Laser Warning Sign

A non-interlocked housing label is situated to the rear of the expose optics housing, visible if outer machine skins are removed, and before the expose optics covers is removed. An additional label is required to be affixed adjacent to the shutter access to the aperture wheel, when this shutter is present.

2.8 CHEMICAL SAFETY

The following guidelines must be followed when storing or handling highly flammable liquids.

- Store bulk supplies in a metal cabinet marked with a 'flammable liquid' label of an approved design.
- For use in the work area, decant the liquid to a container with a maximum capacity of 250 cc. The use of a safety dispenser is recommended.
- Do not use the liquid near to non-flame proofed electrical equipment.
- Do not use the liquid near to a naked flame. DO NOT SMOKE.
- Avoid skin contact. Wear protective gloves.
- Avoid contact with eyes. Wear goggles.
- Use only in a well ventilated area.

2.9 SAFETY LABELS

Safety labels are fitted to the equipment to warn you of potential hazards. These labels must not be defaced or removed.

Safety labels which can be seen when the equipment is installed and operational are listed in the following sections.

2.9.1 Analyse Unit

A label is fitted to the lid (left-hand on 6X6 type units). See Figure 2.2. It warns that the lid (cover) must be closed before an expose sequence is started.

A label is also fitted to the right-hand lid of 6X6 type units. See Figure 2.3. It warns that the right-hand lid closes automatically when the left-hand lid is closed.

Analyse units fitted with remote diagnostics have two labels fitted to the front panel of the remote diagnostics tray. See Figure 2.4. One label describes the safety procedures required when the scanner is handed over to the control of a remote terminal. The other warns of high tension.

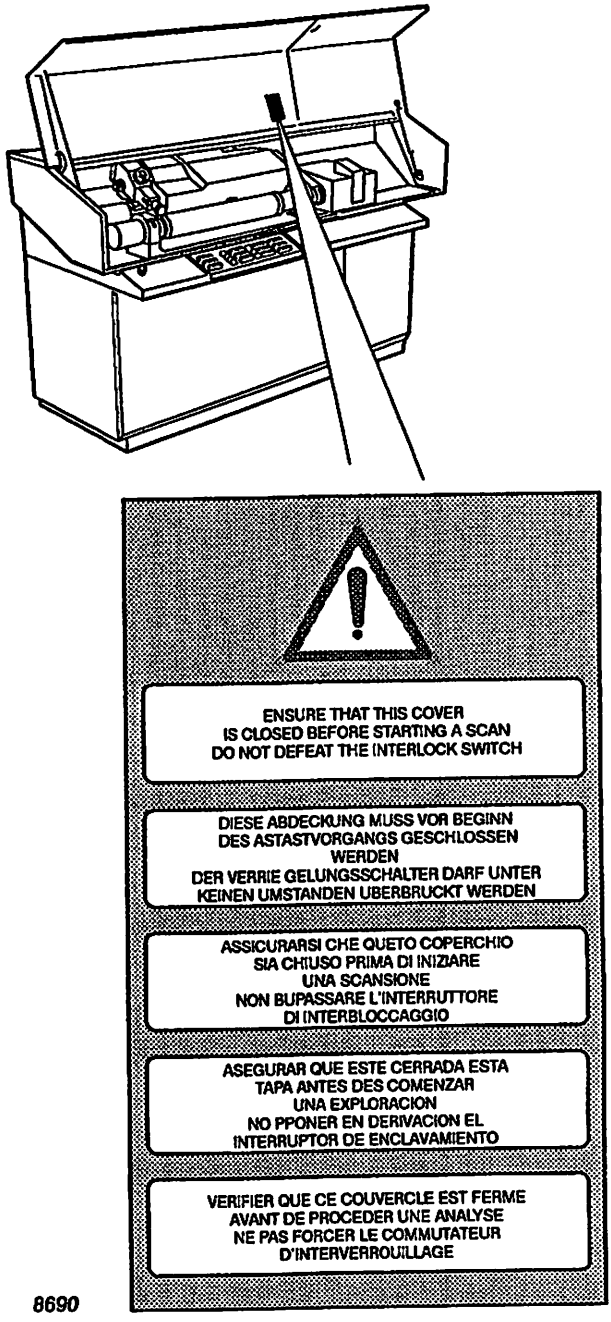


Figure 2.2 Safety Label on Analyse Unit Left-hand Lid

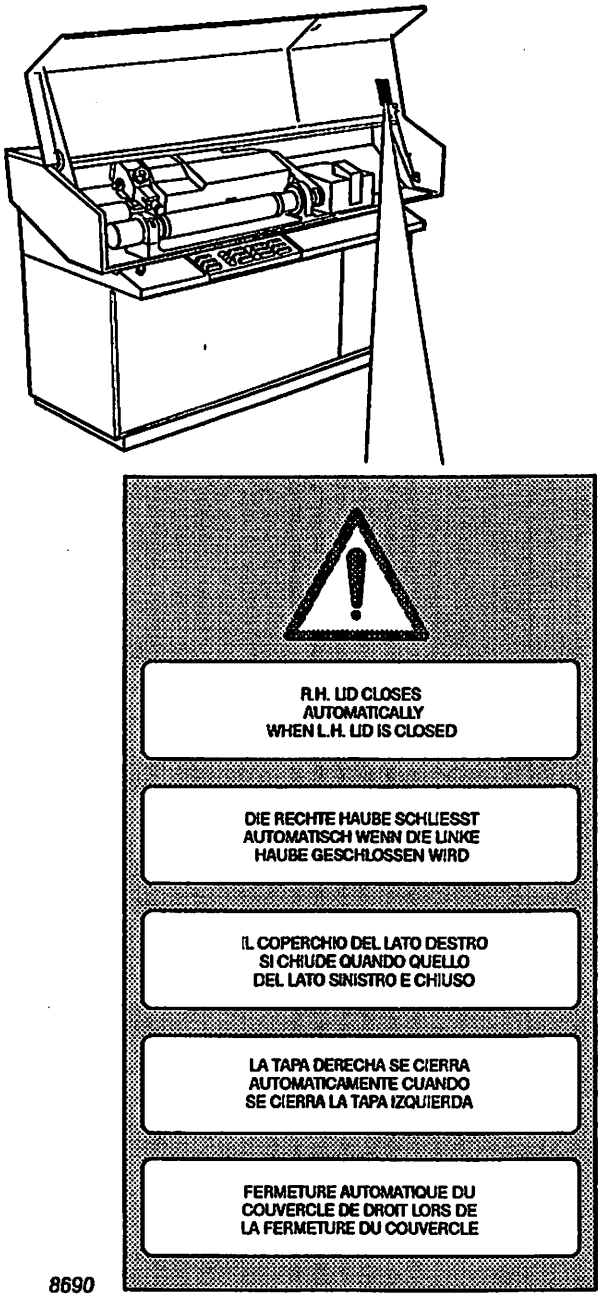


Figure 2.3 Safety Label on Analyse Unit Right-hand Lid

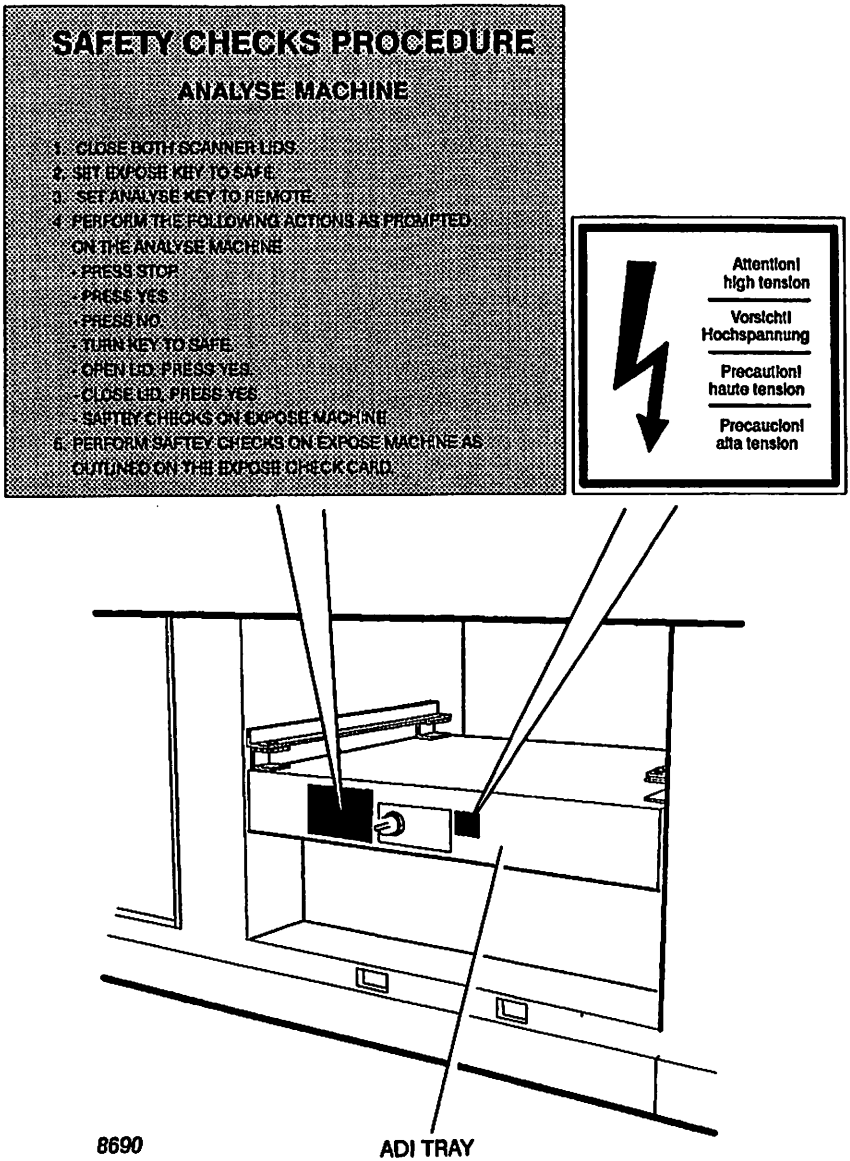


Figure 2.4 Safety Labels on the Analyse Unit, Remote Diagnostics Tray

2.9.2 Expose Unit

A label, warning of high tension is fitted to the back of the expose unit. See Figure 2.5.

On non-lid-locked expose units a label is fitted to the lid. See Figure 2.6. It warns that the lid (cover) must be closed before an expose sequence is started.

Laser warning and certification labels are provided as shown in Figures 2.7 and 2.8 respectively.

Expose units fitted with remote diagnostics have two labels fitted to the front panel of the remote diagnostics tray. See Figure 2.9. One label describes the safety procedures required when the scanner is handed over to the control of a remote terminal. The other warns of high tension.

On ESS and MSS expose units the remote-diagnostics safety-procedure label is replaced by the label normally fitted to analyse units. See Figure 2.4.

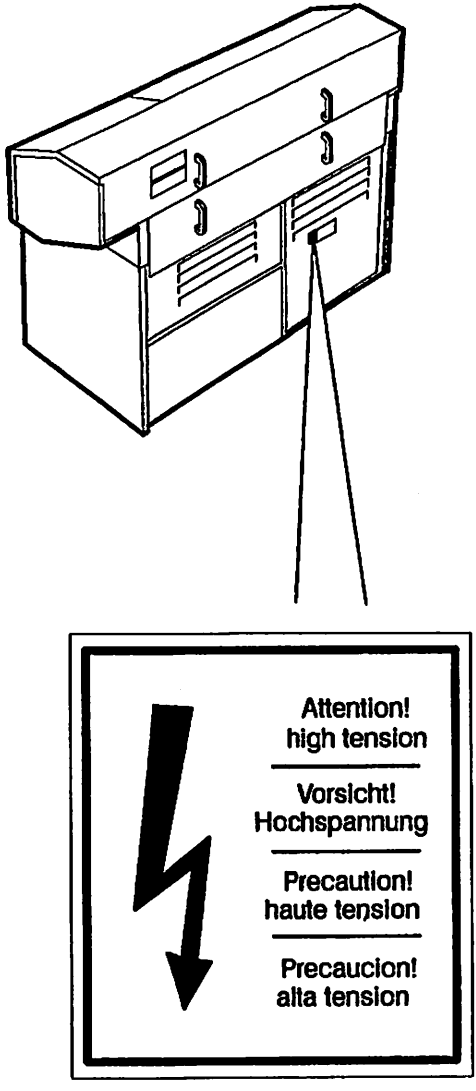
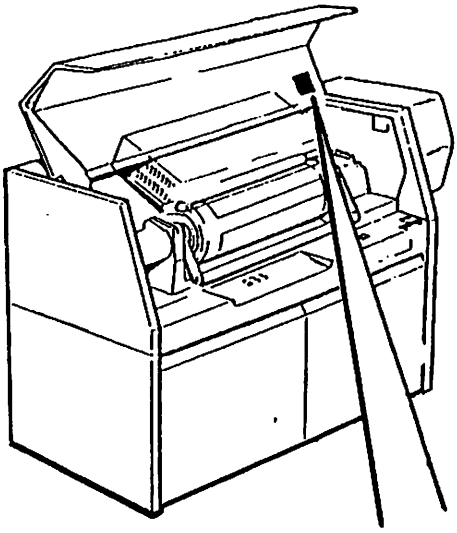


Figure 2.5 Safety Label on Back of Expose Unit



ENSURE THAT THIS COVER
IS CLOSED BEFORE STARTING A SCAN
DO NOT DEFEAT THE INTERLOCK SWITCH

DIESE ABDECKUNG MUSS VOR BEGINN
DES ASTASTVORGANGS GESCHLOSSEN
WERDEN
DER VERRIEGELUNGSSCHALTER DARF UNTER
KEINEN UMSTANDEN UBERBRUCKT WERDEN

ASSICURARSI CHE QUETO COPERCHIO
SIA CHIUSO PRIMA DI INIZIARE
UNA SCANSIONE
NON BUPASSARE L'INTERRUTTORE
DI INTERBLOCCAGGIO

ASEGURAR QUE ESTE CERRADA ESTA
TAPA ANTES DES COMENZAR
UNA EXPLORACION
NO PPONER EN DERIVACION EL
INTERRUPTOR DE ENCLAVAMIENTO

VERIFIER QUE CE COUVERCLE EST FERME
AVANT DE PROCEDER UNE ANALYSE
NE PAS FORCER LE COMMUTATEUR
D'INTERVERROUILLAGE

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Figure 2.6 Safety Label on Expose Unit Lid

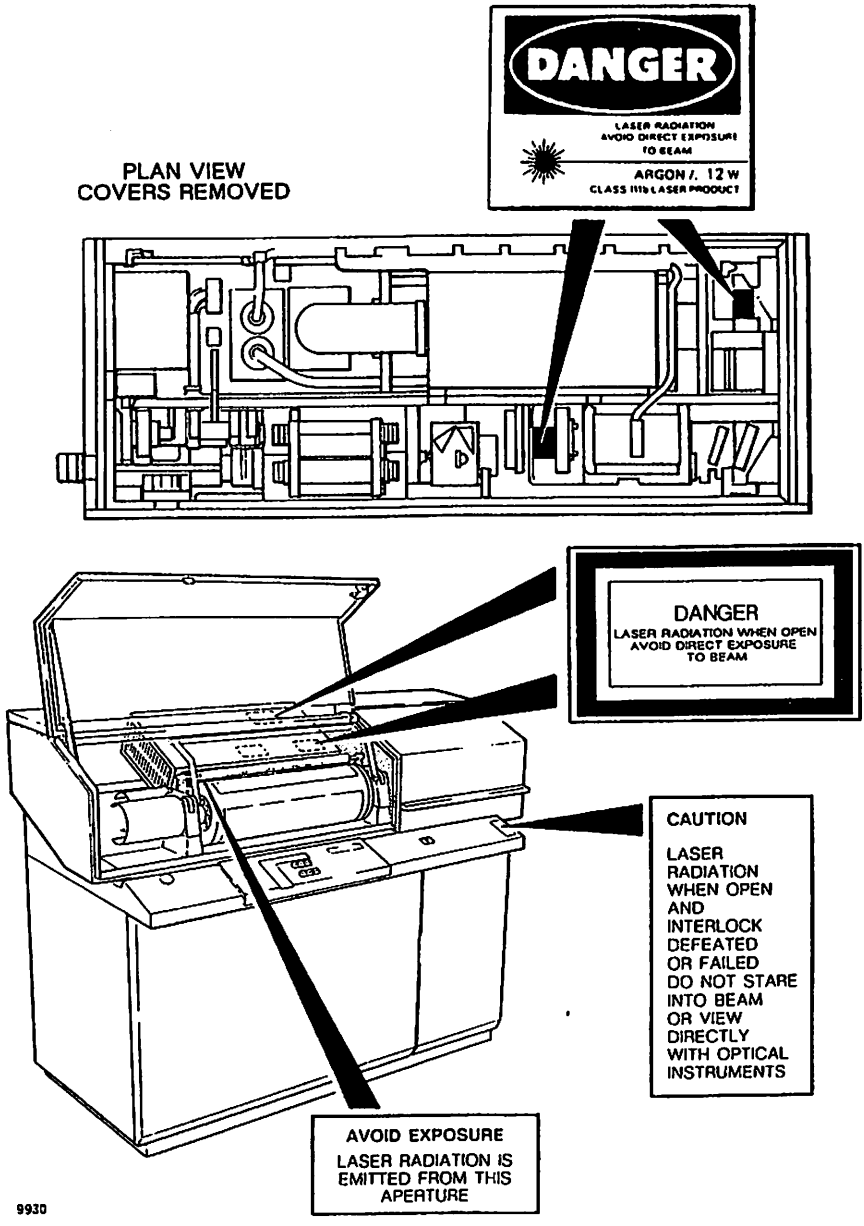

Figure 2.7 Positions of Laser Warning Labels

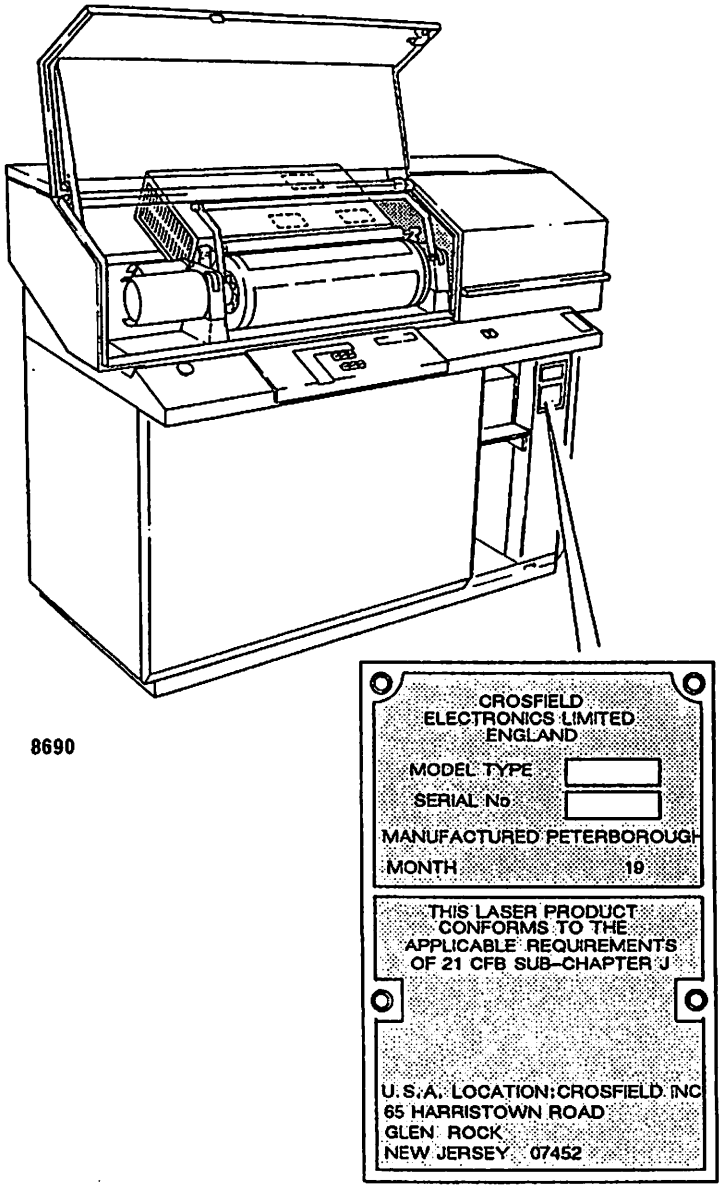

Figure 2.8 Position of Laser Certification Labels

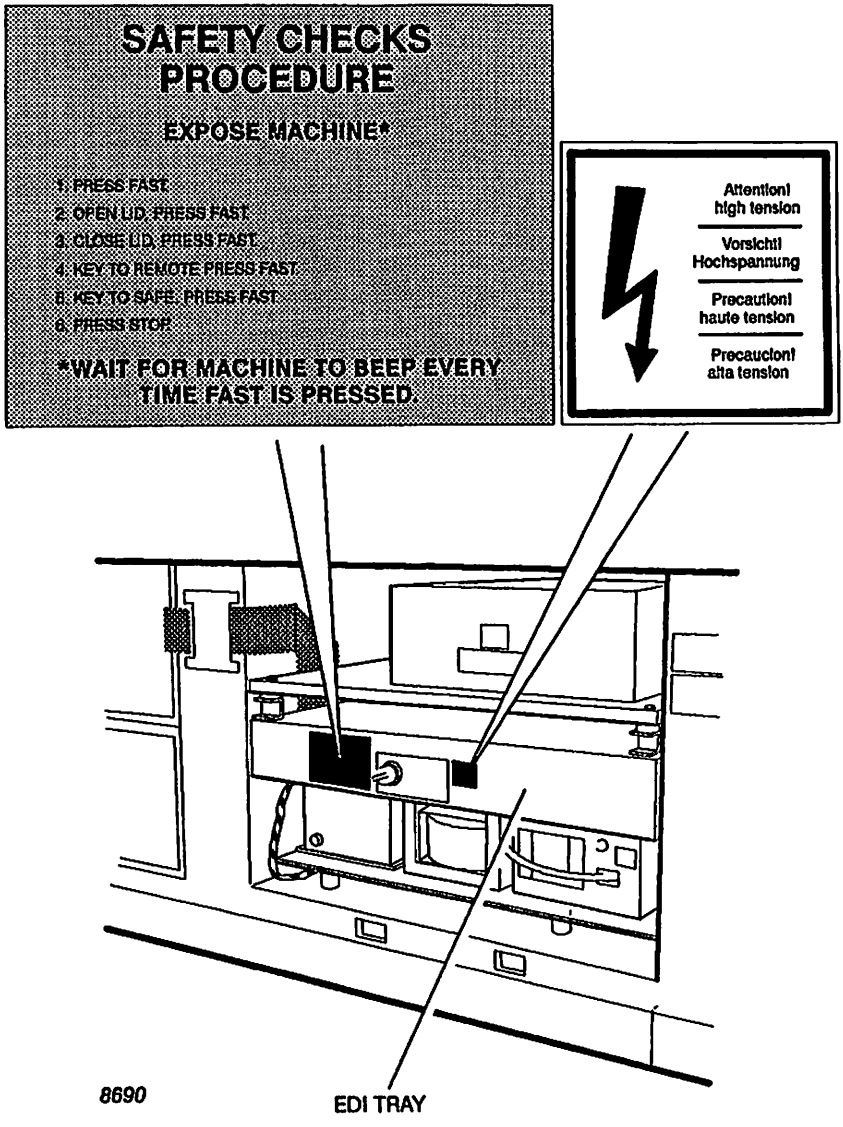

Figure 2.9 Safety Labels on the Expose Unit, Remote Diagnostics Tray

CHAPTER 3

POWER SWITCHES AND SCANNER KEYBOARDS

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CHAPTER 3

POWER SWITCHES AND SCANNER KEYBOARDS

3.1 POWER SWITCHES

3.1.1 Power Switches, Analyse Unit

The control panel carries three power switches (see Figure 3.1) and the keyboard. The **LAMP** and **SCANNER** switches are recessed in the panel side.

The Emergency - Off switch is at the left-hand end of the control panel. It removes all electric power from the analyse unit when it is pressed.

CAUTION

The cylinder will continue to rotate under its own momentum after the power has been removed and sufficient time should be allowed for the cylinder to come to rest before opening the lid of the unit.

The **SCANNER** switch controls the power to all the circuits in the analyse unit except the lamp power supply and the cooling fans.

The **LAMP** switch controls the power to the lamp power supply and the cooling fans.

For power-up procedures, see Section 4.1.

3.1.2 Xenon Lamp Supply

Removal of the left-hand front panel from the scanner will reveal the xenon lamp supply (XLS). The front panel of the XLS carries the push buttons used in starting the lamp. (See Figure 4.1.)

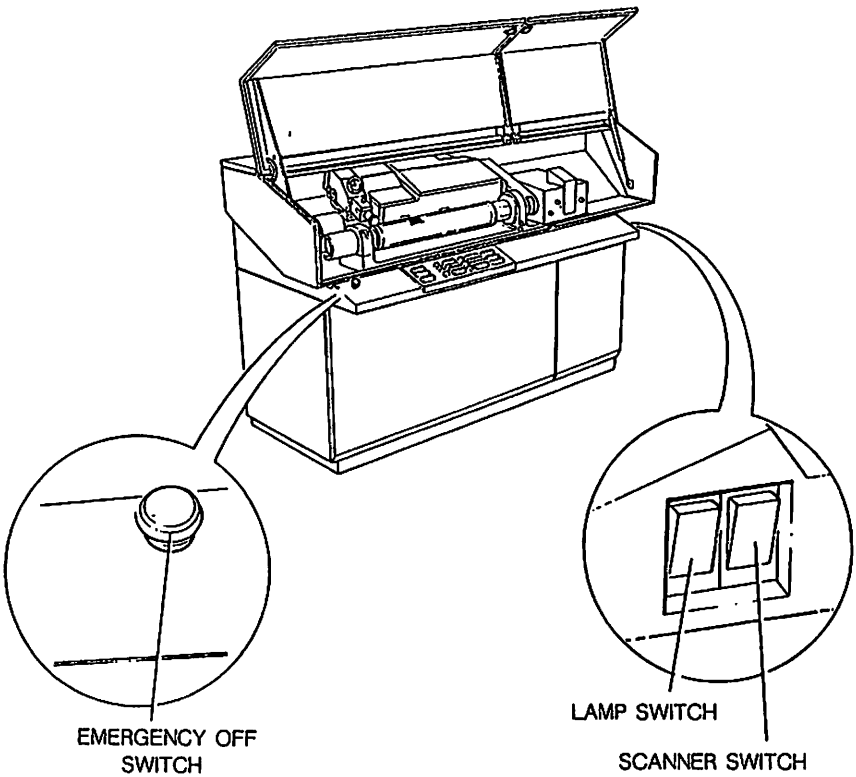


Figure 3.1 Control Panel Switches, Analyse Unit

3.1.3 Power Switches, Expose Unit

The control panel carries five power switches (see Figure 3.2) and the keyboard. The **LASER** and **SCANNER** switches are recessed in the panel side.

The Emergency - Off switch is at the left-hand end of the control panel. It removes all electric power from the expose unit when it is pressed.

Note: The cylinder will continue to rotate under its own momentum after the power has been removed. This fact should be remembered especially by users of scanners without lid interlocks.

The **SCANNER** switch controls the power to all the circuits in the analyse unit except the laser power supply and cooling fan.

The **LASER** switch controls the power to the laser power supply and cooling fan.

The **VACUUM** switch is used to switch on the vacuum pump before the load film switch is operated. If there is insufficient vacuum, both the analyse and expose units will display a warning message when their expose buttons are pressed.

The **LOAD FILM** switch is used to automatically load the film. It must be held down until the loading cycle is completed (see Section 4.6).

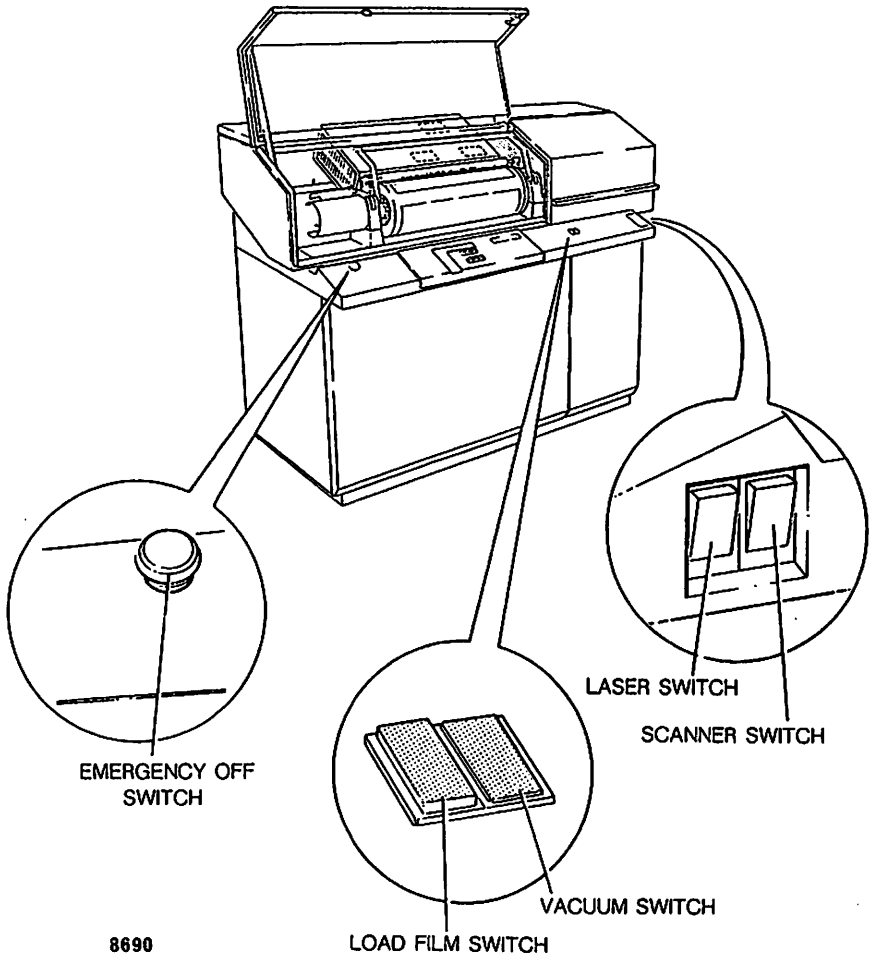


Figure 3.2 Control Panel Switches Expose Unit

3.2 ANALYSE KEYBOARD

The keyboard carries two displays and a number of pushbuttons arranged in groups. The displays are the Alphanumeric Display and the Current Value Display. The groups of buttons are listed as follows:

Operator Control Buttons	see Section 3.2.2
Channel Select Buttons	3.2.3
Keypad Buttons	3.2.4
Editorial Control Buttons	3.2.5 and 3.2.6
Scanner Control Buttons	3.2.7

The groups of pushbuttons are named in Figure 3.3. Some of the buttons have more than one function. Each button and display is described in the following text. For a full description of how they are used, in what sequences and for what purposes, see to Chapters 5, 6 and 7 and the Operator's Reference Guide (Document No. 6500-8700).

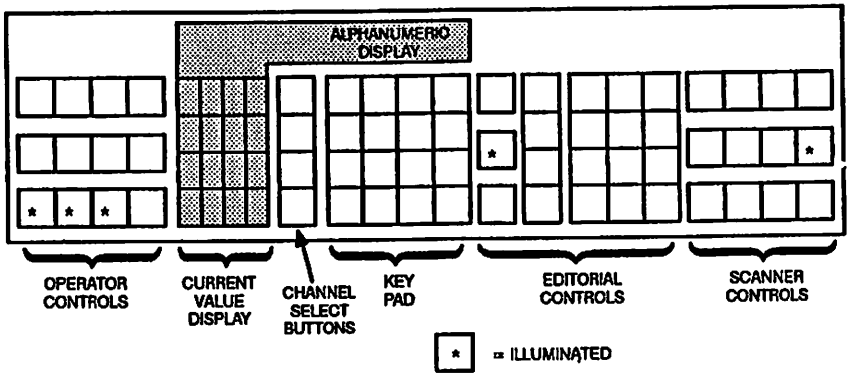


Figure 3.3 Analyse Keyboard

When working under dark-room conditions it is important to turn off any panel-button lights. Enter **[CAL] 0** and press **[ENTER]**. The lights are turned off.

Single Bleep

A short bleep is sounded whenever a keyboard button is pressed to call attention to the displays. This is usually performed in response to an operation, but sometimes the scanner performs a sequence of operations by itself. In that case, it monitors the progress of the sequence by means of displayed messages and gives a bleep for each message.

Sometimes the bleep accompanies an error message.

Double Bleep

A double bleep is given if the wrong type of data is entered in PCR and/or Output Cal entries, i.e. density values instead of dot% values.

Triple Bleep

The triple bleep is a warning.

Sometimes a failure occurs in the machine, a failure message is displayed and three bleeps sound.

Sometimes the operator may attempt an operation that is not allowed. The machine will not understand what is required. It will do nothing, except give three bleeps.

The third case occurs when the machine is unable to autobalance. It will display a message to that effect and give three bleeps.

3.2.1 Keyboard Displays

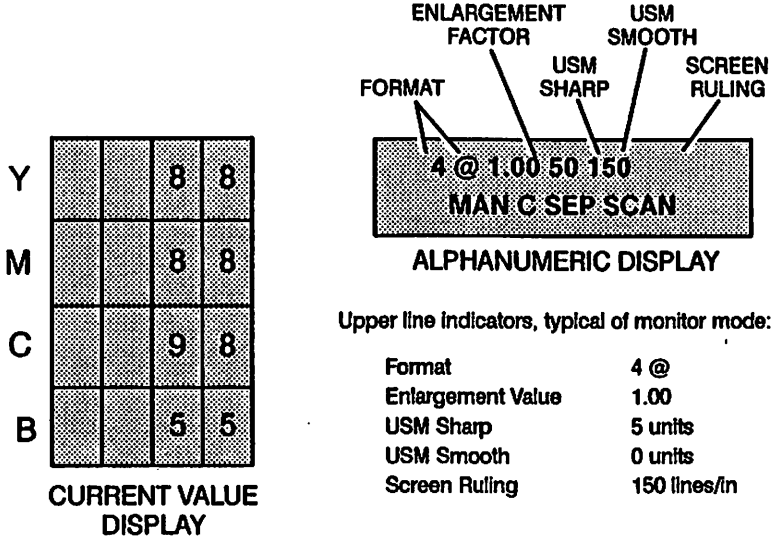


Figure 3.4 Analyse Keyboard Displays

The Alphanumeric Display (see Figure 3.4) shows the current state of the scanner or asks questions about entries that you may want to make. It will also display error messages.

The Current Value Display has one channel for each of the four printers, Yellow, Magenta, Cyan and Black. It displays values of Original density if **[ORIG]** is pressed, or Separation dot% if **[SEP]** is pressed. The values, which are those for the area of the original or cylinder that would be seen in the centre of the View screen, are displayed in the four channels simultaneously.

3.2.2 Operator Control Buttons

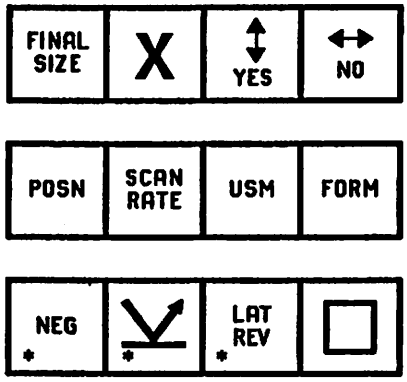


Figure 3.5 Operator Control Buttons

These buttons allow the operator to select facilities that affect the quality of the picture to be produced. Use of the buttons in conjunction with the keypad will cause the Alphanumeric Display to change.

The **[FINAL SIZE]** button is used to enter the required separation size. The scanner will then calculate the enlargement value needed. Alternatively, this button can be used to enter the existing original size and what enlargement value is required.

The Enlargement button is used with the keypad to enter a required enlargement value. When **[FINAL SIZE]** is pressed, the scanner will calculate and display the separation size.

This button is used for two functions:

a) To give affirmative answers to questions shown on the Alphanumeric Display.

b) To select vertical dimensions with **[FINAL SIZE]**.

This button is used for two functions:

a) To give negative answers to questions shown on the Alphanumeric Display.

b) To select horizontal dimensions in conjunction with **[FINAL SIZE]**.

The **[POSN]** button is used to enter the Start position of the picture. It is used in conjunction with the analyse head.

The **[SCAN RATE]** button is used to enter the Output Functions and is used for changing screen ruling, dot shape, angle set and scan rate.

The Unsharp Masking button, **[USM]**, is used to select and display the required levels of USM, USM Sharp and USM Smooth.

The **[FORM]** button is used to select and display the separation format.

then

: enables Step and Repeat functions

then

: enables format re-positioning

The **[NEG]** button is used to select positive or negative output separations.

* Illuminated = negative separations
Not illuminated = positive separations

This button is used to select reflection or transmission mode of operation.

*	Illuminated	=	reflection mode
	Not illuminated	=	transmission mode

The Lateral Reversal button, **[LAT REV]** is used to select the direction in which the analyse carriage moves when scanning.

*	Illuminated	=	right to left
	Not Illuminated	=	left to right

When the button is **not** illuminated, a transparency that is mounted wrong reading, emulsion-up, will be scanned to give a separation which, when viewed emulsion-up, will be wrong reading. This is the normal mode of operation for Offset Litho.

This button is only used in the Duet configuration. It switches the expose unit on and off-line. See the Magnascan Duet Operator's Manual, 6700-2910, for further information.

Line mode is now selected using **[CAL] 509.**

3.2.3 Channel Select Buttons

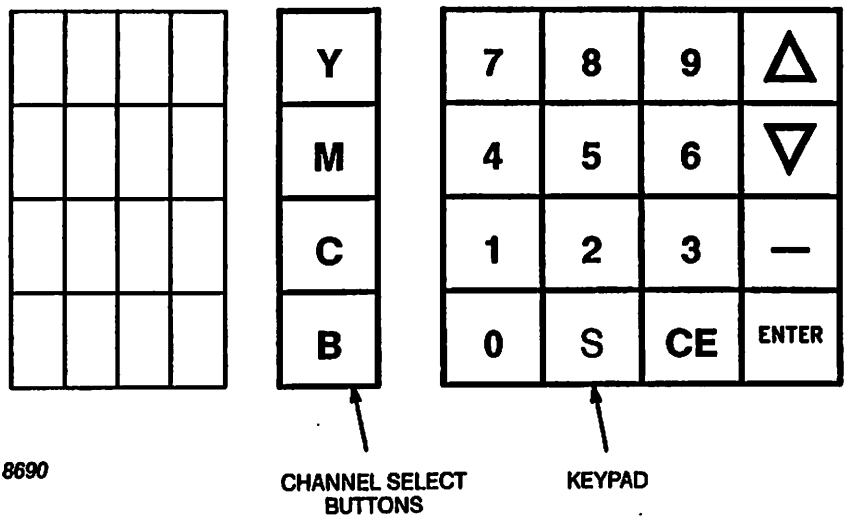


Figure 3.6 Channel Select Buttons and Keypad

These four buttons are coloured to correspond to the colour of the printers, Yellow, Magenta, Cyan and Black. The buttons are selected individually so that you can enter reproduction characteristics for an individual channel.

3.2.4 Keypad Buttons

All the buttons from 0 to 9, together with the decimal point and the minus sign, are used to enter numerical data into the scanner.

Increase/
Step Backward

Decrease/
Step forward

These buttons may be used to increase or decrease the effect of a selected Edit function, raising or lowering the Index number of that Edit function.

They may also be used to step through the output functions sequence, as indicated.

CE

The **[CE]** button is used to cancel any entry that has been selected by means of the keypad, provided that **[ENTER]** has **not** been pressed.

ENTER

The **[ENTER]** button is used to enter any data into the scanner. A successful entry is indicated by **one** bleep.

3.2.5 Editorial Controls

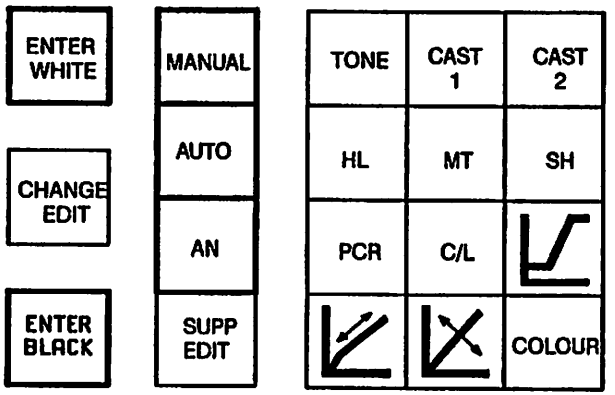


Figure 3.7 Editorial Control Buttons

End Densities

[ENTER WHITE], **[ENTER BLACK]**, **[MANUAL]**, **[AUTO]** and the Auto Neutral key, **[AN]**, are used to set the Highlight and Shadow starting points. The picture processing will be based on these two points. The scanner will determine the required tonal gradation between these points, according to instructions from the operator.

ENTER WHITE

The **[ENTER WHITE]** button is used to enter the first printing tone.

The **[ENTER BLACK]** button is used to enter shadow areas. Where there are no shadows, you can enter saturated colours.

Note: Enter White (EW) and Enter Black (EB) functions must be set **before** the editorial non-facsimile controls are used.

[MANUAL], **[AUTO]** and **[AN]** select the way in which you wish to use EW and/or EB.

The **[MANUAL]** button is used to enter an individual value for EW and/or EB in any of the three colour channels. The values in the other channels and the Black Printer will be adjusted automatically to give scanner facsimile at that entry point.

The **[AUTO]** button is used to enter preset values for EW and/or EB without needing to select a colour channel.

1. Highlight

   Enter **[AUTO]** followed by **[ENTER WHITE]**. The scanner automatically puts a preset value in the lowest channel and adjusts the other channels to give proportional values. This will give partial neutralization of any cast.

2. Shadow

   Enter **[AUTO]** followed by **[ENTER BLACK]**. The scanner automatically puts a preset value in the highest channel and adjusts the other channels proportionally.

The Auto-Neutral **[AN]** button is used to enter preset values for EW and/or EB that will give a completely neutralized set of values for the three colour channels. There is no need to select a particular channel.

1. Highlight

   For a transparency with a cast in the highlight which should print as a neutral, use **[AN]** with EW.

2. Shadow

The shadow of a transparency that is not neutral may appear to be Dark Brown or Dark Green or Dark Blue. To make the shadow neutral, use **[AN]**. Do not use **[AN]** to remove an overall cast.

Note: Enter White and Enter Black must be set before these buttons are used. **[CAST 2]** must always be selected before **[CAST 1]**.

Tone and Cast Buttons

The **[TONE]** button is effective simultaneously in all channels. **[CAST 1]** is effective in individual channels and not neutral selective. **[CAST 2]** is neutral selective in the shadows only.

Pressing **[TONE]**, **[CAST 1]** or **[CAST 2]** a second time will take you out of that particular Edit mode.

The **[HL]**, **[MT]** and **[SH]** buttons are used to control highlight, midtone and shadow gradations respectively. Any one of these may be used after **[TONE]** or **[CAST 1]**.

The **[TONE]** button is used to make equal and simultaneous adjustments of the curves in all three colour channels, in Highlights and/or Mid Tones and/or Shadows, thus making particular parts of a transparency heavier or lighter while still maintaining inter-channel difference.

: enables Neutral Tone function

[CAST 2] must always be selected before **[CAST 1]**.

The **[CAST 2]** button differs from **[CAST 1]**.

a) It is NEUTRAL SELECTIVE, i.e. has full effect on neutrals in the subject with no effect on saturated colours;

b) It is only effective in Shadows (the **[SH]** button does not require selection).

The **[CAST 1]** button is used in:

a) the Highlight and/or Mid Tone and/or Shadow areas;

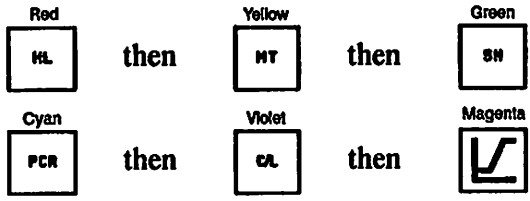
b) the C and/or Y and/or M channels.

Cast can be corrected in one or two colour channels, e.g. in order to make an area neutral. However, cast correction can be made in all three colour channels if required.

The Cast 1 function must be applied after the Cast 2 function.

Note: This button affects neutrals and colours alike and is therefore NOT NEUTRAL SELECTIVE.

Colour Correction Buttons



These coloured buttons have dual functions and will only work as colour correction (CC) controls if the CC facility has been selected beforehand by pressing **[COLOUR]**. Otherwise, they operate according to the functions marked on their faces. The CC buttons are used to select colours in the original to be corrected.

If a direct entry CC is attempted but is not acceptable (e.g. monitoring a blue area and trying to use the red button in the C channel) an error message will appear on the Alphanumeric Display. This applies to direct entry of % dot values but not to the use of the Increase and Decrease buttons,

i.e. and respectively.

Colour

The **[COLOUR]** button is used to access the CC controls.

Press **[COLOUR]** again to exit from the CC mode.

Polychromatic Colour Removal

The **[PCR]** button is used to access the Polychromatic Colour Removal (PCR) facility.

Catchlight

The Catchlight button **[C/L]**, is used to get a highlight drop-out facility with variable Slope.

The Catchlight (CL) must be set using Breakpoint and Slope facilities.

Breakpoint

This button is used in the Breakpoint setting sequences for PCR and CL to interrogate the current settings.

then : enables pastel functions

Slope

This button is used in the Slope setting sequence for PCR and CL to interrogate the current settings.

Limits

This button is used to set dot% limits. This has the effect of cutting off the tones in a scanned film at a certain dot%. It is normally used for a specific printing process.

Note: The Limits function should not be confused with Highlight Catchlight control or Shadow PCR control.

The **[CANCEL EDIT]** button lights up when Edit functions have been selected or entered into the scanner provided that the last used CV and JV are not equal. **[MANUAL] [ENTER WHITE], [MANUAL] [ENTER BLACK]** and **[AUTO] [ENTER BLACK] do not** cause the button to light up.

If the **[CANCEL EDIT]** button is pressed, the scanner display asks if you wish to cancel all the Edit functions (Colour, Tone, Cast 1, Cast 2, PCR, Catchlight, Limits, Black, Pastel Boost).

- Press **[YES]** if you do. The scanner bleeps once, cancels all edits and returns to the monitor mode.
- Press **[NO]** if you don't. The scanner asks if you wish to cancel the first Edit function. It repeats this for each function in turn, stepping through them as **[YES]** or **[NO]** are pressed.

The **[SUPP EDIT]** button is used to see what effect an Edit control is having.

a) Select the Edit function and press **[SUPP EDIT]**. This will suppress the Edit that has been made and show you the value before the Edit was applied.

b) If no Edit is in use, **[SUPP EDIT]** displays CV without Grey Balance (GB). If an Edit function is in use and its effects are to be displayed without GB, exit from the Edit function, press **[SUPP EDIT]**.

3.2.6 Scanner Controls

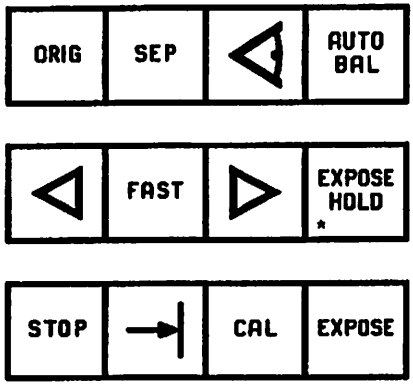


Figure 3.8 Scanner Control Buttons

These buttons are used to control various scanner operations.

The **[ORIG]** button is used to obtain densitometer readings. While the scanner is in the monitor mode it will operate as a densitometer. Point the analyse head at any part of the subject, and the scanner will display density readings for that area in the three colour channels on the Current Value Display.

The **[SEP]** button is used to change the Current Value Display from original density to Separation Dot%.

This button is used to change the scanner from the monitor mode to the View mode. This allows copy to be seen through the analyse viewer.

Pressing it a second time returns the scanner to the monitor mode.

The **[AUTOBAL]** button is used to prepare the scanner for the Autobalance function. The scanner will ask **AUTOBAL YES/NO?** Press **[YES]** to Autobalance. Autobalance is the automatic calibration and

matching of the three input channels (similar to zeroing a densitometer). Clear cylinder represents minimum density, and an internal shutter, which cuts off the light to the photomultipliers, represents maximum density. An intermediate density is represented by the 'B' patch neutral density filter, which is used automatically by the scanner during autobalance.

The machine will give one bleep to indicate a satisfactory autobalance, or three bleeps to indicate an unsatisfactory autobalance. The machine will still operate if three bleeps have been signalled.

Traverse Left

Traverse Right

These buttons are used to control the manual traversing of the analyse carriage and operate only while the button is pressed. The rate of traverse is increased when **[FAST]** is pressed together with either a Traverse Left or Traverse Right button.

The **[EXPOSE HOLD]** button is used to insert a gap between separations. It must be used before pressing **[EXPOSE]** to start the next exposure. **[EXPOSE HOLD]** prevents the expose carriage from re-setting to the start position. To set the gap size, use: **[CAL] 34. [EXPOSE HOLD]** lights up when in use.

This button is used to end all current operations, i.e.

a) when the scanner is exposing, **[STOP]** will stop the exposure and the scanner will return to the monitor mode (the expose head position is shown on the expose keyboard display);

b) when the analyse keyboard is being used, **[STOP]** will cause the scanner to leave the current function, shown on the Alphanumeric Display, and return to the monitor mode.

WARNING

This is not the emergency-off switch.

This button is used to obtain the Cylinder Release or Datum Search functions. When pressed, either **CYLINDER RELEASE ??** or **DATUM SEARCH??** is displayed.

If the operation is the one required, press **[YES]**.

If the operation is not the one required, press **[NO]**.

Press the Cylinder Release/Datum Search button again to display the other operation.

Press **[YES]** to start the required operation.

The **[CAL]** button is used in two ways:

a) if followed by **[EXPOSE]** it selects the exposure of the electronically generated grey scale;

b) if followed by an entry of numbers from the keypad it gives access to one of the scanner adjustment and calibration procedures.

The **[EXPOSE]** button is used to tell the scanner that exposure can take place.

Provided that both lids are down, exposure can be started by either:

a) Pressing, in turn, analyse unit keys **[EXPOSE]** **[YES]**. This method may only be used where the Expose units are fitted with lid locks.

b) Pressing the analyse unit **[EXPOSE]** and the Expose unit **[EXPOSE]** keys successively (in either order).

While the exposure is in progress, the Alphanumeric Display will show the percentage of the separation which remains to be exposed, (from 100% down to 0%).

3.3 EXPOSE KEYBOARD

The keyboard has an Alphanumeric Display and six push buttons.

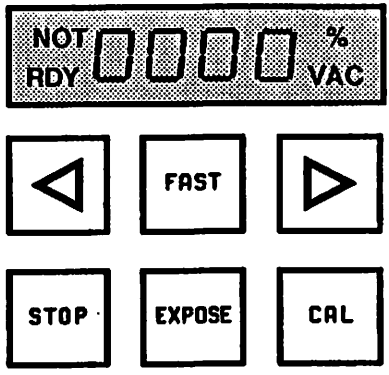
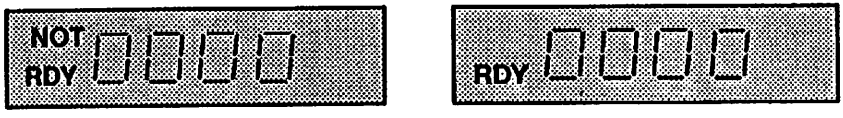


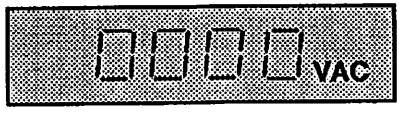
Figure 3.9 Expose Keyboard

3.3.1 Keyboard Display

The Alphanumeric Display will show the status of the Expose unit. This is usually **NOT RDY**. When **[EXPOSE]** is pressed, **NOT RDY** will normally change to **RDY**. If there is insufficient vacuum, **VAC** will be displayed:



In the CAL mode, laser power in mW is displayed:



Whilst the grey scale is being exposed, the display shows the percentage of the exposure remaining - i.e. the display counts down from 100% to 0%.

At the start and finish of a separation exposure, the display shows the distance (in mm) of the expose spot from the datum position.

3.3.2 Keyboard Buttons

These buttons are used in Traverse mode or Laser Power Mode:

1. In Traverse Mode they control the manual traverse of the expose carriage. The left-hand button gives slow traverse to the left, the right-hand button gives slow traverse to the right. **[FAST]** gives a faster rate of traverse when used with either button.
2. For Laser Power Mode press **[CAL]**. Then the left-hand button decreases laser power; the right-hand button increases the laser power. **[FAST]** gives a faster rate of change when used with either button.

The **[STOP]** button is used to stop the scanner exposing. The cylinder brake is applied for a few seconds.

The **[EXPOSE]** button is used to start exposures. After both analyse and expose lids are closed, and sufficient vacuum held, press **[EXPOSE]** on both units. The exposure starts when the second button is pressed.

The **[CAL]** button is used to check/adjust the laser power. When **[CAL]** is pressed, the display alternates between CAL and the current laser power. The traverse buttons will operate in the Laser Power mode. **[CAL]** must be pressed again to revert to the Traverse mode.

3.4 OUTPUT SCANNING STATION KEYBOARD

The Output Scanning Station (Magnascan WESS, WMSS, GESS or GMSS) employs an Expose Stand-Alone Keyboard, which has an Alphanumeric Display and four groups of push buttons. The groups of buttons are listed as follows:

Operator Control Buttons	see Section 3.4.2
Channel Select Buttons	3.4.3
The Keypad	3.4.4
Scanner Control Buttons	3.4.5

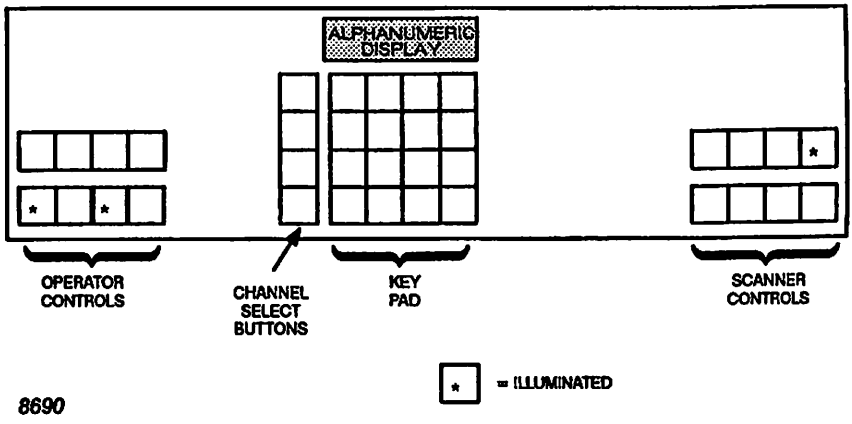


Figure 3.10 Expose Stand-Alone Keyboard

* The panel lights are normally left on, but while loading film they must be turned off.

3.4.1 Keyboard Display

The Alphanumeric Display shows the current state of the expose unit or asks questions about entries that may be required.

3.4.2 Operator Control Buttons

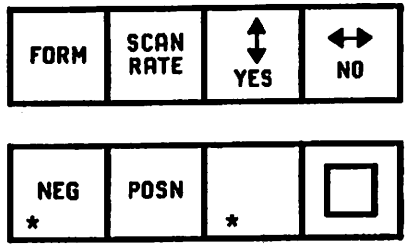


Figure 3.11 Output Scanning Station (646 only) Operator Control Buttons

The **[FORM]** button is used to select and display the separation format.

then

: enables format re-positioning

The **[SCAN RATE]** button is used to enter the Output Functions and is used for changing screen ruling, dot shape, angle set and scan rate.

The **[YES]** button is used to give affirmative answers to questions shown on the Alphanumeric Display and to select vertical format.

The **[NO]** button is used to give negative answers to questions shown on the Alphanumeric Display and to select horizontal format.

The **[NEG]** button is used to select positive or negative output separations.

* Illuminated = negative separations
Not illuminated = positive separations

The **[POSN]** button is used in conjunction with **[FORM]** to expose a separation with any chosen screen angle.

This is the Panel Lights button, used to control illumination of the orange buttons on the keyboard.

* Illuminated = panel lights on
Not illuminated = panel lights off

This button is not used.

Line mode is now selected using **[CAL] 509.**

3.4.3 Channel Select Buttons

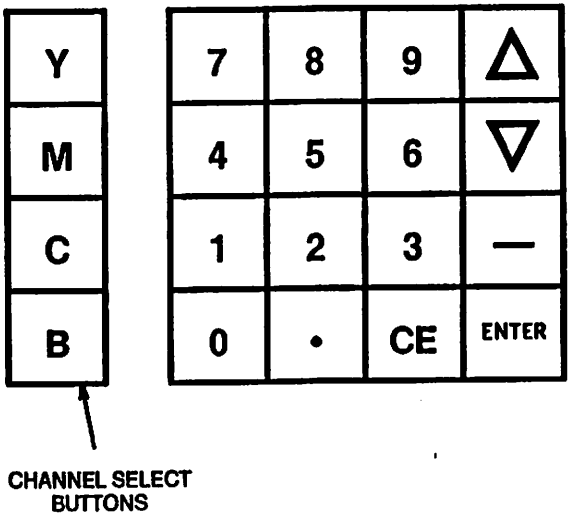


Figure 3.12 Output Scanning-Station Channel-Select Buttons and Keypad

These four buttons are coloured to correspond to the colour of the printers, Yellow, Magenta, Cyan and Black. The buttons are selected individually so that reproduction characteristics for an individual channel can be entered.

3.4.4 Keypad

All the buttons from 0 to 9, together with the decimal point and the minus sign, are used to enter numerical data into the scanner.

These buttons are not used on this unit.

The **[CE]** button cancels any entry that has been selected by means of the keypad provided that **[ENTER]** has **not** been pressed.

The **[ENTER]** button is used to enter any data into the scanner. A successful entry is indicated by **one** bleep.

3.4.5 Scanner Controls

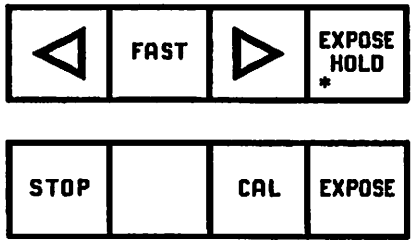


Figure 3.13 Output Scanning-Station Scanner-Control Buttons

This group of buttons are used to control various scanner operations.

Traverse Left Traverse Right

Manual traverse operates only while the buttons are pressed. The rate of traverse is increased when **[FAST]** is pressed together with one of the traverse buttons.

The **[EXPOSE HOLD]** button is used to prevent the expose carriage from resetting to start when **[EXPOSE]** is pressed. **[EXPOSE HOLD]** lights up when in use.

This button is used to end all current operations,

a) when the scanner is exposing, **[STOP]** will stop the expose and the scanner will return to the monitor mode.

b) when you are using the keyboard, **[STOP]** will cause the scanner to leave the current function, shown on the Alphanumeric display, and return to the monitor mode.

WARNING

This is not the emergency off switch.

The **[CAL]** button is used in two ways:

a) if followed by **[EXPOSE]** it selects the exposure of the electronically generated grey scale.

b) if followed by an entry of numbers from the keypad it gives access to one of the scanner adjustment and calibration procedures.

The **[EXPOSE]** button is used to tell the scanner that exposure can take place. Exposure will only take place if the lid has been closed before the expose button is pressed.

While the exposure is in progress, the Alphanumeric Display will show the percentage of the separation which remains to be exposed, (from 100% down to 0%).

CHAPTER 4

GENERAL OPERATING PROCEDURES

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CHAPTER 4

GENERAL OPERATING PROCEDURES

4.1 POWER-UP PROCEDURES

This procedure assumes that:

a) Analyse **LAMP** and **SCANNER** switches are off

b) Expose **LAMP** and **SCANNER** switches are off.

The sequence is summarized as follows:

1. Switch on the xenon lamp (Section 4.1.1).
2. Switch on the laser (Section 4.1.2).
3. Switch on the expose unit (Section 4.1.3).
4. Switch on the analyse unit (Section 4.1.4).
5. Start up the SDT or Studio HSI terminal (Sections 4.1.6, 4.1.7 and 4.1.8).
6. Switch on the disk drive unit(s) (Section 4.1.11).
7. Initialize the scanner (Section 4.1.5).

Note: On both analyse and expose units, the scanner switches are interlocked with the xenon lamp and laser switches respectively. It is impossible to switch on the analyse or expose unit before switching on the xenon lamp or laser.

The **ON** sequence is

LAMP → LASER → EXPOSE → ANALYSE → SDT

The **OFF** sequence is

SDT → ANALYSE → EXPOSE → LASER → LAMP

4.1.1 Xenon Lamp

1. Remove the lower left-hand front panel from the analyse unit to gain access to the XLS.
2. Switch on the lamp as follows:
   a) Set the **LAMP** switch on the control panel to on.

b) Set the **MAINS ON/OFF** switch on the XLS panel to on.

c) Momentarily depress the push-button **LAMP START** switch on the XLS front panel. Do not keep switch depressed, as this may cause damage to the XLS.

The lamp starter will make a noise for about one second, after which the lamp should light. The **MAINS ON** indicator lamp should also light. If the lamp does not light, press the button again, after waiting at least five seconds. Repeat until lamp lights. Most lamps light the first time but some may require two or even three attempts, especially when cold and/or new. If the lamp fails to light, turn off the **LAMP** switch on the control panel. Check that the lamp is correctly fitted.

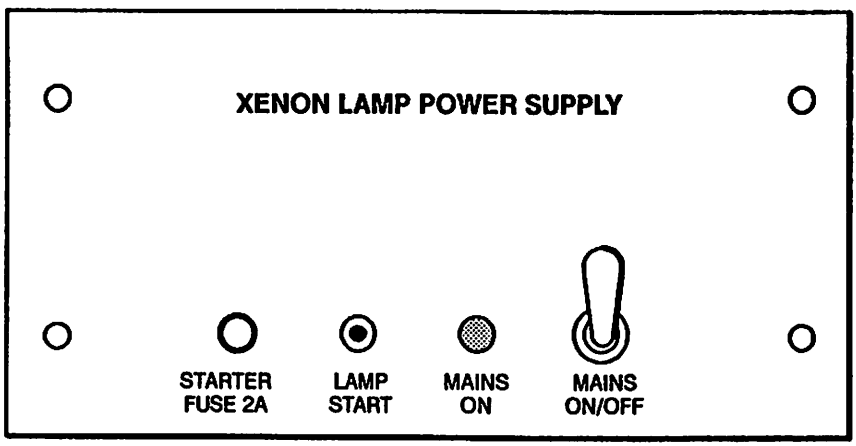


Figure 4.1 XLS Front Panel

4.1.2 Laser

Switch the expose unit **LASER** switch to on. The laser will run in standby mode. Later on, you may wish to check and/or change the laser output power, using **[CAL] 46.** (See Section 4.5.4.)

4.1.3 Expose Unit

Switch the expose unit **SCANNER** switch to on.

4.1.4 Analyse Unit

1. Switch the analyse unit **Scanner** switch to on.
2. Rotate the analyse cylinder through one revolution to set its angular position in the scanner's computer.

Later on you should adjust the lamphouse optics (see Section 4.4.2) and align the analyse head (see Section 4.4.3).

4.1.5 Scanner Initialization

When a scanner is switched off, some information previously entered by the operator will be lost from the scanner memory. For example, JVs, original position values, final size values etc. The operator will enter new information during job set-up. Unless and until new information is entered, the scanner will use BV values which are permanently stored in its memory.

However, some information must be entered by the operator as soon as a scanner is switched on. The information required will depend on:

1. Analyse unit/expose unit/disk drive configuration.
2. Software program in use.

It may be necessary to enter some or all of the following information. (For full details, refer to Crosfield Field Support Staff).

Resolution Mode - **[CAL] 304** (See Section 4.4.4)

Expose Cylinder Size - **[CAL] 895** (See Section 4.5.1)

Expose Turret Used - **[CAL] 897** (See Section 4.5.2)

Note: See Section 4.7 for the initialization of multiple expose units.

4.1.6 SDT Cabinet - Boot Procedure (Floppy-disk Loaded Software)

CAUTION

Never switch the Terminal on or off when the floppy disks are loaded.

1. If necessary, switch the VDU and Printer switches to **ON**.

2. Switch on the **Power** switch at the right-hand top corner of the front panel. Check that the fans come on, by feeling the warm air blown out of the grilles in the rear and left-hand panels.

   Note: Both the Printer and the VDU are powered from the Scanner Data Terminal. Wait at least 20 seconds for the unit to warm up. If the cursor does not appear, adjust the **CONTRAST** control until the background is barely visible. The cursor should appear.

3. Load both floppy disks (see Section 4.9.1):

   Left-hand drive (0) - Crosfield system disk

   Right-hand drive (1) - Customer data disk

   The LED of the left-hand drive will flash.

4. **Scan-to-Film.** Press the boot button at the top of the front panel. The LED of the left-hand drive will flash and the VDU screen will display the program software number. The screen then displays:

   followed by:

   Scan-to-Disk. Press the boot button at the top of the front panel. The LED of the left-hand drive will flash and the VDU screen will display the program software number. The screen then displays:

   followed by:

This is shortly followed by display of the Current System Configuration, typically:

```
                CURRENT SYSTEM CONFIGURATION

Printer Type [M = MX80, R = RX80 or LX80]---    RX-80
Text INPUT Hardware found
Text OUTPUT Scanner is unit [1-4]----------     1
Text HRE offset for resolution mode 0 is-----  22 (hex)
Text HRE offset for resolution mode 1 is-----  22 (hex)
Text HRE offset for resolution mode 2 is-----  22 (hex)
Floppy Drive Count is [1,2]----------------    2 drive (s)
NETWORK Found[M = MAGNET,F = FILE MANAGER]     Filemanager
This is ScanStation Unit Number [1,9]------    1 on FILEMANAGER
RM0: is ScanStation LUN 0 and is ----------    Private
RM1: is ScanStation LUN 1 and is ----------    Private
RN0: is ScanStation LUN 2 and is----------     0 on FILEMANAGER
RN1: is ScanStation LUN 3 and is----------     1 on FILEMANAGER


IS THIS CORRECT [Y,N]:---------------------
```

5. **Scan-to-Film.** The screen then requests the data in the form **16-MAR-82<RETURN>**. Enter the date as requested followed by pressing **[RETURN]**.The screen then requests the time in the form **14:25 <RETURN>**. Enter the time as requested, followed by pressing **[RETURN]**. The appropriate Level One Menu will appear on the screen, indicating that the terminal is ready for use.

   Scan-to-Disk. The Current System Configuration should only need to be altered at installation time or if the system has been modified.

   a) If no change is required, press: **[Y]**.
   The screen then requests the date. Enter the date, followed by the time as described in Step 5, Scan-to-Film.

   b) To change the configuration, press **[N]**.
   The underline cursor will move to the entry point. To leave an entry unchanged, press **[RETURN]**. The cursor will move to the next line.

   The responses to the options are listed on the right-hand side of the options displayed under **CURRENT SYSTEM CONFIGURATION**. For example, to change the system to be compatible with RX80 or LX80 printers, press **[R] [RETURN]**. The display is updated accordingly and the cursor moves to the next line.

The system configuration also lists the image disk drives that can be connected to the available hardware. These can be a mix of the following:

DP0:
DP1:
DP2:
DP3:
} CDC 300 Mbyte removable

RM0:
RM1:
RN0:
RN1:
} Winchester

The hardware configuration for each drive is entered by using one of the following responses:

[n] [RETURN] N is drive No. on File Man./Magnet
[p] [RETURN] Private
[N] [RETURN] Not connected

Winchester drives are usually dual-ported to a Studio System. The drive number by which a File Manager recognizes the dual-ported drive is entered by **[n] [RETURN]** - this has been previously set during studio configuration. CDC removeable pack drives are not dual-ported and will be set to be 'Private' to the SDT by entering **[p] [RETURN]**.

The screen then requests the date. Enter the date, followed by the time as described in Step 5, Scan-to-Film.

4.1.7 SDT Cabinet Power-up (Permanently Loaded Software)

Boot Procedure

CAUTION

Never switch the Terminal on or off when the floppy disks are loaded.

1. If necessary, switch the VDU and Printer switches to **ON**.
2. Switch on the **Power** switch at the right-hand top corner of the front panel. Check that the fans come on, by feeling the warm air blown out of the grilles in the rear and left-hand panels.

Note: Both the Printer and the VDU are powered from the Scanner Data Terminal. Wait at least 20 seconds for the unit to warm up. If the cursor does not appear, adjust the **CONTRAST** control until the background is barely visible. The cursor should appear.

3. Press the boot button (top left of the front panel). The VDU screen will display the program software number followed by:

```
System Bootstrap Sequence In Progress
```

followed by:

```
Please Wait
```

The boot sequence will proceed automatically but will pause to allow changes to be made to the configuration:

```
                CURRENT SYSTEM CONFIGURATION

Printer Type [M = MX80, R = RX80 or LX80]---    RX-80
Text INPUT Hardware found
Text OUTPUT Scanner is unit [1-4]----------     1
Text HRE offset for resolution mode 0 is-----   22 (hex)
Text HRE offset for resolution mode 1 is-----   22 (hex)
Text HRE offset for resolution mode 2 is-----   22 (hex)
Floppy Drive Count is [1,2]----------------     2 drive (s)
NETWORK Found[M = MAGNET,F = FILE MANAGER]      Filemanager
This is ScanStation Unit Number [1,9]--------   1 on FILEMANAGER
RM0: is ScanStation LUN 0 and is -----------    Private
RM1: is ScanStation LUN 1 and is -----------    Private
RN0: is ScanStation LUN 2 and is-----------     0 on FILEMANAGER
RN1: is ScanStation LUN 3 and is-----------     1 on FILEMANAGER

IS THIS CORRECT [Y,N]:---------------------
```

4. Enter **[Y]** or allow the system to time-out to proceed with the boot sequence. Alternatively, enter **[N]** and make any configuration changes required, then enter **[Y]** to confirm entries and proceed with the boot sequence. The Current System Configuration should only need to be altered at installation time or if the system has been modified.

   After pressing **[N]** the underline cursor will move to the entry point. To leave an entry unchanged, press **[RETURN]**. The cursor will move to the next line.

   The responses to the options are listed on the right-hand side of the options displayed under **CURRENT SYSTEM CONFIGURATION**. For example, to change the system to be

compatible with RX80 or LX80 printers, enter: **[R] [RETURN]**. The display is updated accordingly and the cursor moves to the next line.

The system configuration also lists the image disk drives that can be connected to the available hardware. These can be a mix of the following:

DP0:
DP1:
DP2:
DP3:
} CDC 300 Mbyte removable

RM0:
RM1:
RN0:
RN1:
} Winchester

The hardware configuration for each drive is entered by using one of the following responses:

[n] [RETURN] N is drive No. on File Man./Magnet
[p] [RETURN] Private
[N] [RETURN] Not connected

Winchester drives are usually dual-ported to a Studio System. The drive number by which a File Manager recognizes the dual-ported drive is entered by **[n] [RETURN]**. This has been previously set during studio configuration. CDC removeable pack drives are not dual-ported and will be set to be 'Private' to the SDT by entering **[p] [RETURN]**.

5. The screen then requests the date in the form **16-MAR-82 <RETURN>**. Enter the date as requested followed by **[RETURN]**. The screen then requests the time in the form **14:25 <RETURN>**. Enter the time as requested, followed by pressing **[RETURN]**. The appropriate Level One Menu will appear on the screen, indicating that the terminal is ready for use.

CAUTION

Do not load a floppy disk when the SDT or Studio HSI chassis is powered down.

Loading The Job File Floppy-disk

CAUTION

Do not power-down the SDT or Studio HSI chassis when a floppy disk is loaded.

1. Ensure the boot-up procedure is complete.
2. Ensure the floppy disk is the correct type and that the write enable label is in position over the write protect notch. (If a dual floppy-disk drive is fitted, insert the disk into the left-hand drive.) Press the handle on the floppy disk drive to open the door and insert the floppy disk horizontally, write enable label towards the left with the slot facing the disk drive. Push the floppy disk into position and, using the handle, close the door.

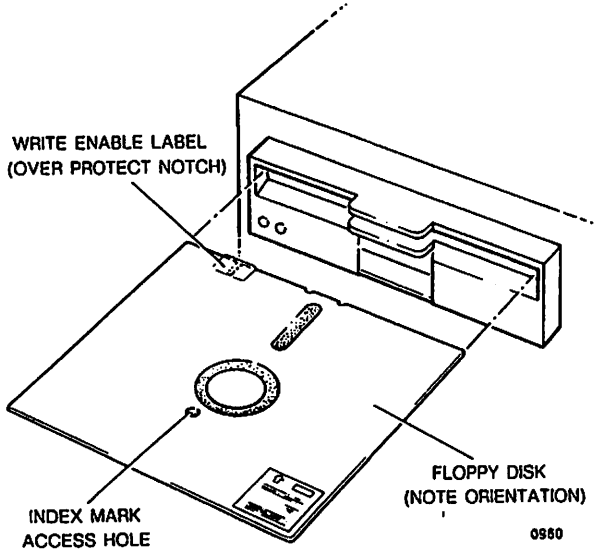


Figure 4.2 Floppy Disk Loading Orientation (Disk Horizontal)

Upon inserting the disk, and when the door is closed, the floppy-disk-loaded indicator is illuminated. While data is being loaded, the activity light is also illuminated. Normally the activity light is not illuminated after a few seconds when accessing data

from a disk. However, when filing data on a floppy disk, illumination of the activity light is intermittent until the task is completed.

Loading Diagnostic Software

1. Insert the Diagnostic Software floppy disk (7522-7650) into the floppy disk drive. (If a dual floppy disk drive is fitted, insert the disk into the left-hand drive.)
2. Press the Boot push-button and, within two seconds, press the space-bar on the keyboard. The VDU displays the following prompt:

```
>Device?
```

3. Enter **DY0:[RETURN]**.

   Note: Software from any SDT Diagnostic floppy disk can be loaded in the same way.

4.1.8 Studio HSI Power-up

CAUTION

Never power-up or power-down the Studio HSI with a floppy disk loaded.

1. If necessary, set to ON the POWER switch at the rear of the VDU.

   Press **[CTRL] [BREAK]** at the VDU keyboard. The VDU screen displays the program software numbers followed by:

```
System Bootstrap Sequence in Progress
```

   and

```
Please Wait
```

This is followed by the Current System Configuration display, typically:

```
CURRENT SYSTEM CONFIGURATION
Printer Type [M=MX80, R=RX80 or LX80] ---- MX-80
Text INPUT Hardware found
Text OUTPUT Scanner is unit [1-4]---------- 1
Text HRE offset for resolution mode 0 is---- 20 (hex)
Text HRE offset for resolution mode 1 is---- 20 (hex)
Text HRE offset for resolution mode 2 is---- 20 (hex)
Floppy Drive Count is [1,2]---------------- 2 drive(s)
NETWORK Found (M=MAGNET, F=FILE MANAGER] Filemanager
This is ScanStation Unit Number [1,9]------ 1 on FILEMANAGER
RM0:Is ScanStation LUN 0 and is ---------- Private
RM1: Is ScanStation LUN 1 and is---------- Private
RN0: Is ScanStation LUN 2 and is ---------- 0 on FILEMANAGER
RN1: Is ScanStation LUN 3 and is ---------- 1 on FILEMANAGER
IS THIS CORRECT [Y,N]:-------------------
```

2. If **[Y]** is pressed the operator is prompted to enter the date . Enter the current date in the form **20-MAY-89** and press **[RETURN]**.

   The operator is prompted to enter the time in 24-hour format. Enter the current time in the form **16:30** and press **[RETURN]**.

   The appropriate Level One Menu is displayed, indicating that the Studio HSI is ready for use.

   If **[N]** is pressed the underline cursor moves to the entry point.

   a) Change the entry and press **[RETURN]**, or

   b) Press **[RETURN]** to leave an entry unchanged.

      The cursor moves to the next line.

      Valid responses to the options are listed on the right-hand side of the options, displayed under **CURRENT SYSTEM CONFIGURATION**. For example, to change the system to be compatible with RX80 or LX80 printers, enter **[R] [RETURN]**.

      The display is updated accordingly and the cursor moves to the next line.

      The system configuration also lists the image disk drives that can be connected to the available hardware. These can be:

      RM0:
RM1:
RN0:
RN1: } Winchester

The hardware configuration for each drive is entered by using one of the following responses:

n [RETURN] N is drive No. on File Man./Magnet
p [RETURN] Private
N [RETURN] Not connected

Winchester disk drives are usually dual-ported to a Studio System. The drive number by which a File Manager recognizes the dual-ported drive is entered by **[N] [RETURN]** This is previously set during Studio configuration.

The screen prompts for the date. Enter the date, followed by the time as described in Step 2.

Loading Job Files From Floppy Disk

CAUTION

Do not load a floppy disk when the Studio HSI is powered down.

CAUTION

Do not power-down the Studio HSI whilst a floppy disk is loaded.

1. Ensure the boot-up procedure is complete.

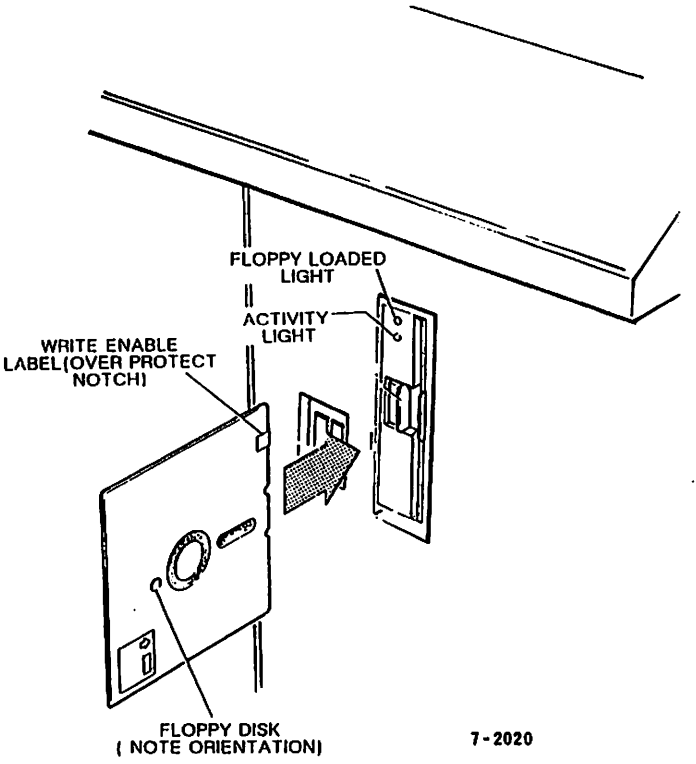


Figure 4.3 Floppy Disk Loading Orientation (Disk Vertical)

2. Ensure the floppy disk is the correct type and that the write enable label is in position over the write protect notch. Press the handle on the floppy disk drive to open the door and insert the floppy disk vertically, write enable label towards the top with the slot facing the disk drive. Push the floppy disk into position and, using the handle, close the door.

   Upon inserting the disk, and when the door is closed, the floppy diskette loaded indicator is illuminated. While data is being loaded, the activity light is also illuminated. Normally the activity light is not illuminated after a few seconds when accessing data from a disk. However, when filing data on a floppy disk, illumination of the activity light is intermittent until the task is completed.

Loading Diagnostic Software

1. Insert the Diagnostic Software floppy-disk (P7522-7650) into the floppy-disk drive.
2. Press and hold **[CTRL]** then press **[BREAK]**. Release both keys. Within two seconds, press the space-bar on the keyboard. The VDU displays the following prompt:

   ```
   > Device?
   ```

3. Enter **DY0:[RETURN]**.

Note: Software from any Studio HSI Diagnostic floppy disk can be loaded in the same way.

4.1.9 Reloading System Software (Permanently Loaded Versions)

Under certain fault conditions it may be necessary to reload the system software from floppy disks.

System Winchester Disk Format

1. Load diagnostic software for the SDT or Studio HSI.
2. Enter: **WDLT**

   Press: **[RETURN]**
3. The VDU displays:

   ```
   Which DL units (0,1,2, and/or 3) [none]?
   ```

   Press: **0, 1, 2**

   Press: **[RETURN]**
4. The VDU displays:

   ```
   Which DY units (0 and/or 1) [none]?
   ```

   Press: **[RETURN]**
5. The VDU displays:

   ```
   CSR address of DL controller [174400]?
   ```

   Press: **[RETURN]**

6. The VDU displays:

```
Q Qualify (format, verify)
V Verify (write random data, read)
B Bad block scan (read only)
Which function (Q,V,or B) [Q]?
```

Press: **[RETURN]**

7. The VDU displays:

```
Generate an error log file [N]?
```

Press: **[RETURN]**

8. The VDU displays:

```
DL0:, DL1:,DL2:/FORMAT/WRITE/REPLACE-Are you sure [N]?
```

Press: **Y**

Press: **[RETURN]**

The program does a format pass and indicates when this is complete. Verify passes commence. If any bad blocks are found, they are reported via the VDU and the bad block file is automatically updated. The completion of all 16 passes is not necessary, allow at least four passes and halt when two successive passes have shown no errors by entering:

[CTRL] [C] [CTRL] [C]

at the VDU keyboard. The Winchester disk may now be loaded with software from the HSI DISTRIBUTION KIT via the floppy-disk drive.

Loading Standard Boot Software

The following procedures are to be carried out to load the standard boot software onto the system winchester disk from the master floppy disks. The software package (P7523-6970) comprises one SYSTEM and, currently, two UTILITY floppy disks. The software package provides for:

- Further UTILITY disks to be added, if required.
- UPGRADE disk(s) to be added on future occasion(s) when the utilities require upgrading.

1. Load the distribution floppy-disk labelled SYSTEM into the floppy-disk drive.

   Boot the floppy disk by carrying out the procedure described in Steps 2 and 3 of the diagnostic load procedure. Refer to the relevant routine for the SDT cabinet or Studio HSI chassis

   The following messages are displayed on the VDU:

```
RT-11SJ (S) V05.02
SET TT QUIET
      CROSFIELD HSI 64X SYSTEM INSTALLATION
(c) 1989 CROSFIELD ELECTRONICS LIMITED
Version 1.00      19-Mar-89
There are THREE phases to this installation:
Phase 1 - Copy basic SYSTEM files to target System Winchester.
Phase 2 - Copy UTILITY files to target System Winchester.
Phase 3 - Copy UPGRADE files to target System Winchester.
Phase 1 - Copy basic system to target System Winchester and cross-boot.
** WARNING **
      Any SYSTEM presently on the Winchester will be
      COMPLETELY OVER-RIDDEN by this process.
DO YOU WISH TO CONTINUE [Y, N D:N]?
```

2. Enter: **Y [RETURN]**

   Date and time prompts are displayed.

```
Please enter today's DATE and TIME when asked. This installation will NOT be
acceptable unless valid replies are given.
Month names are: JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
What is today's DATE (e.g. 1-JUN-89) [S]?
```

   Enter date in the form **20-MAR-89**. The date is accordingly displayed and the time prompt is given.

```
DATE 20-MAR-89
What is the current TIME (24 hour clock, e.g. 14:25) [S]?
```

   Enter time in the form **14:25** (seconds can be added if desired). The time is displayed, followed by an error prompt.

```
TIME 14:25
Were any ERRORS reported or are the DATE and TIME incorrect [Y, N D:N]?
```

3. If an error exists, e.g. syntax, or an invalid date and time are entered, the program loops back to Step 2, requesting the date and time again. Assuming there are not any errors, enter **[N] [RETURN]**.

4. The display shows:

```
Performing BAD BLOCK CHECK on the Winchester
INITIALIZE/REPLACE/NOQUERY DLO:
```

Followed, after about two minutes, by

```
Copying SYSTEM files from Master Distribution Floppy to Winchester.
```

5. The display shows the list of SYSTEM files being copied and finishes with:

```
COPY/SYSTEM/SETDATE DYO:*.* DLO:
COPY/BOOT DLO:RT11SJ.SYS DLO:
RENAME DLO:STARTS.ONE DLO:STARTS.COM
BOOT DLO:
```

6. Remove the SYSTEM floppy disk from the drive.

The system boots automatically from the system Winchester and the screen displays:

```
RT-11SJ (S) V05.02
SET TT QUIET
(c) 1989 CROSFIELD ELECTRONICS LIMITED
Phase 2 - Copy basic utilities to target System Winchester.
Mount the First UTILITY Floppy Disk into the floppy drive.
```

7. Load the first UTILITY floppy disk, into the floppy drive. The VDU displays

```
Hit [Y] [RETURN] when ready [Y,N D:N]?
```

8. Press **[Y] [RETURN]**

The display responds with the message:

```
COPY DYO:*.* DLO:
```

The list of files being copied is displayed, followed by the prompt:

```
* Are there any more UTILITY Floppies in the distribution kit [Y, N D:N]?
```

9. If there is a further UTILITY disk, press **[Y] [RETURN]**

```
Mount the Next UTILITY Floppy Disk into the floppy drive.
```

Remove existing UTILITY floppy disk from the drive. Insert the next UTILITY floppy disk in the drive. The VDU displays:

```
Hit [Y] [RETURN] when ready [Y, N D:N]?
```

Repeat as from Step 8.

If there is not a further UTILITY disk, press **[N] [RETURN]**. Remove the existing UTILITY disk from the drive.

10. The VDU displays

```
Phase 3 - Copy upgrade utilities to target System Winchester
Are there any UPGRADE Floppies to be loaded [Y, N D:N]?
```

11. If there are any UPGRADE floppy disks to be loaded, press **[Y] [RETURN]** and proceed to Step 12.

    If there is not an UPGRADE floppy disk to be loaded, press **[N] [RETURN]** and proceed to Step 13.

12. The VDU displays:

```
Mount the First UPGRADE Floppy Disk into the floppy drive.
```

Load the first UPGRADE floppy disk into the floppy drive. The VDU displays:

```
Hit [Y] [RETURN] when ready [Y, N D:N]?
```

Press: **[Y]** and **[RETURN]**

The VDU displays the message:

```
COPY/SYSTEM DY0:*.* DL0:
```

The list of files being copied is displayed, followed by the prompt:

```
Are there any more UPGRADE Floppies in the distribution kit [Y, N D:N]?
```

If there are no more UPGRADE floppy disks in the distribution kit, press **[N] and [RETURN]**. Remove the existing UPGRADE floppy disk from the drive. Proceed to Step 13.

If there are any more UPGRADE floppy disks in the distribution kit, press **[Y] and [RETURN]**. Remove the existing UPGRADE floppy disk from the drive. The VDU displays:

```
Mount the Next UPGRADE Floppy Disk into the floppy drive.
```

Load the next UPGRADE floppy disk into the drive. Repeat the sequence as detailed from display segment **Hit [Y] [Return] when ready [Y, N D:N]?** mentioned previously in this Step.

13. The VDU displays:

```
RENAME DLO:MENUZZ.SAV DLO:MENU.SAV
RENAME DLO:STARTS.TWO DLO:STARTS.COM
Bootstrapping the final system . . .
BOOT DLO:
```

The final system display appears on the VDU. All subsequent Booting is carried out from the Winchester disk. The SDT, or Studio HSI is ready for use.

4.1.10 Printer Initialization

Note: The Printer will not operate if there is no paper in it.

If the AC power is switched off and on again, the following events occur:

1. The print head returns to its home position.
2. The Printer is automatically switched to the On-line mode, (unless it is out of paper).
3. The Printer reverts to the Text mode.
4. The Printer memory is cleared.

For further information on the Printer refer to the manufacturer's handbook.

4.1.11 CDC 300 Mbyte Disk Drive Unit

If the unit has been unused for a week or more, the unit should be run without a disk pack, for at least half an hour.

If the disk pack has not been used for more than a week, is new, or has not been acclimatized to the ambient temperature of the disk drive room, the disk must be purged. See Section 8.6.4.

For disk pack loading/unloading, see to Section 4.10. For normal operation, all circuit breakers on the power supply are in the up position. The Local/Remote switch is set to **LOCAL**. The drive motor is started by pressing the **START** switch on the control panel. The read/write heads will load when the motor is up to speed. The **READY** light flashes as the motor runs up to speed, then it lights continuously. The **FAULT** light should be out.

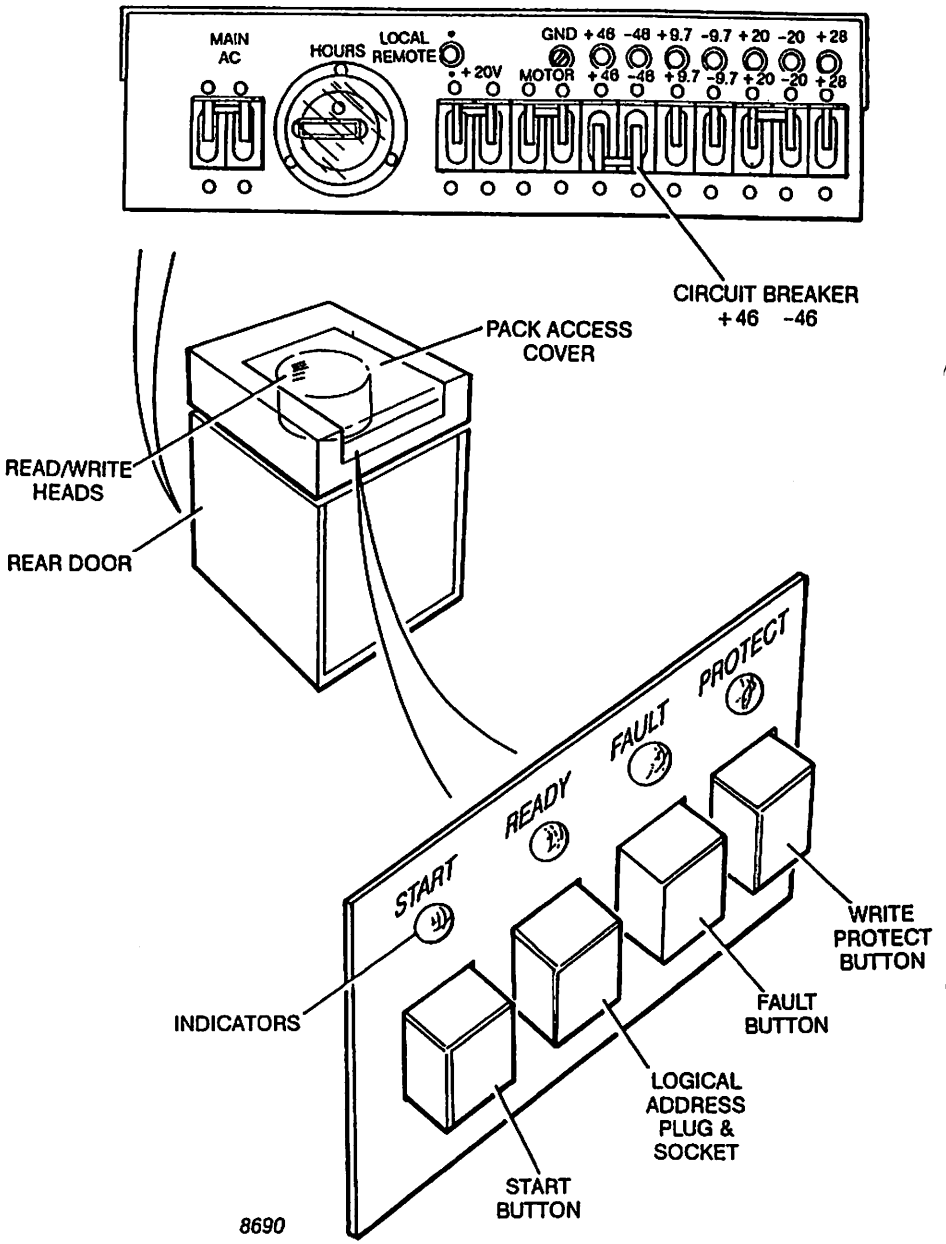


Figure 4.4 Disk Drive Switches

4.2 POWER-DOWN PROCEDURES

4.2.1 Analyse Unit and Xenon Lamp

The xenon lamp should not normally be switched off unless it is to be left off for long periods. When leaving the scanner overnight and at weekends, reduce the light on the photo-multipliers. This can be done by:

a) taping a 0.9 neutral density filter onto the cylinder, or

b) selecting the most dense filter in the lamphouse.

If it is necessary to switch off the xenon lamp, set the **SCANNER** switch to off and then set the **LAMP** switch to off.

4.2.2 Expose Unit and Laser

To improve stability, the laser should normally be left running continuously. The scanner will automatically switch the laser to standby mode after half an hour of non-exposure. If it is necessary to switch off the laser, set the **SCANNER** switch to off, and then set the **LASER** switch to off.

4.2.3 Scanner Data Terminal (646 only)

Before turning off the AC power supply switch on this unit, it is essential to unload both floppy disks to avoid corrupting the data.

4.2.4 VDU and Printer

These are powered from the SDT. Hence they are switched off together when the terminal is switched off. If necessary, they can be switched off separately using their on/off switches.

4.2.5 CDC 300 Mbyte Disk Drive Unit (646 option)

Switch off the disk drive and remove the disk pack (see Section 4.9.2). Ensure that the lid is closed to prevent dust entering the unit. Switch off the mains to the unit, by pulling down the circuit breaker at the rear. (See Figure 4.4.)

Make sure that there is paper in the printer.

4.3 ANALYSE CYLINDER PROCEDURES

4.3.1 Cylinder Cleaning

The outside of the cylinders should be cleaned using one of the following cleaning solvents:

- SDS Scanner Drum Cleaner

  Source : SDS Drum Service GMBH
  Bekwisch 9
  2000 Norderstedt
  Germany
  Telephone: 49-40-523 9837

- Kami DC 2001

  UK Agent : D Mycroft & Co
  40a Jasmine Grove
  London SE20 8JP
  Telephone: 081-659 1424

This item should be obtained from a local supplier, as it is not a Crosfield-supplied product.

WARNING

These solvents are highly flammable and must be used with care. Before handling, see Section 2.8, Chemical Safety.

Analyse drums must be removed from the analyse unit when cleaning is required. An exception may be made when only a small area of the drum is to be cleaned. In this case wet a tissue sparingly with solvent and apply it to the cylinder with care. Do not take the solvent container to the analyse unit.

A cylindrical lambswool-covered mop is provided for cleaning inside the analyse cylinder. The recommended cleaning technique is to cover the head of the mop with a tissue moistened with cleaning fluid, push the mop up the cylinder and then repeat with a clean tissue for a final polish.

The effect of any static, generated while the outside of the cylinder is being cleaned, can be neutralized using the Static Master brush.

4.3.2 Transparency Mounting

See Figure 4.5

1. Clean the transparency with a small quantity of film cleaner applied to a soft lint-free cloth or soft tissue.
2. Set the loading table for use with the required analyse cylinder - roller handles out for the large cylinder, or roller handles in for the small cylinder.
3. Lift the transparency flap and lower the cylinder carefully onto the rollers.
4. Select the appropriate pressure roller and fit it to the roller shaft. Set the roller in one of the roller slots behind the cylinder - use the farther slots for the large cylinder and the nearer slots for the small cylinder.
5. Bring the pressure roller into position, bearing against the cylinder, by operating the knob at the right-hand end of the mounting table.
6. Bring the transparent flap down.

   Note: Tesa tape is recommended for use when attaching transparencies to the analyse cylinder. The tape is manufactured by Beiersdorf A.G., Hamburg, Germany.

7. For enlargements less than 350%.

   a) Use Anti-Newton Ring spray or powder and holding the transparency at arm's length from the nozzle of the spray, spray onto the side of the transparency that is to contact the cylinder. At the correct distance from the transparency, the spray nozzle will produce a finely grained matt covering on the transparency with no runs (it is advisable to practice with a spare piece of clear film or transparency beforehand, to ensure good results). Take care to ensure that no dust is impregnated in the spray covering.

   b) Fix self-adhesive tape along the top edge of the transparency. Using the grid lines marked on the flap as a guide, align the transparency carefully with the cylinder. The alignment is particularly important with large enlargements of small originals, as any small errors in alignment will be more obvious on the enlarged separation.

c) Apply self-adhesive tape to the trailing edge of the transparency and turn the cylinder so that the pressure roller rolls over the transparency and fixes it to the cylinder.

8. For enlargements of 350% or more.

   a) Fix self-adhesive tape along the top edge of the transparency. Using the grid lines marked on the flap as a guide, align the transparency carefully with the cylinder. The alignment is particularly important with large enlargements of small originals as any small errors in alignment will be more obvious on the enlarged separation.

   b) Place a spare piece of film 1-2 mm from the trailing edge of the transparency and tape the two together. Apply self-adhesive tape to the lower edge of the spare film. Do not butt the film to the transparency as this causes air bubbles to form.

   c) Lift the spare film and transparency and apply a small amount of liquid paraffin to the **middle of the leading edge.** Turn the cylinder, allowing the pressure roller to squeeze out the excess oil. When the pressure roller is half-way over the trailing edge of the film, wipe away the remaining oil from underneath the film, using a tissue. Continue turning the cylinder past the film. Do not turn the cylinder a second time under the pressure roller.

   d) Wipe the excess oil away with a tissue and check for dust, bubbles, etc. that may be trapped under the transparency. Clean the oil from the pressure roller, cylinder and transparency with a tissue moistened with solvent (see Section 4.3.1).

   e) Finally, apply adhesive tape to the side edges of the transparency, to prevent the oil from escaping when the cylinder is rotating.

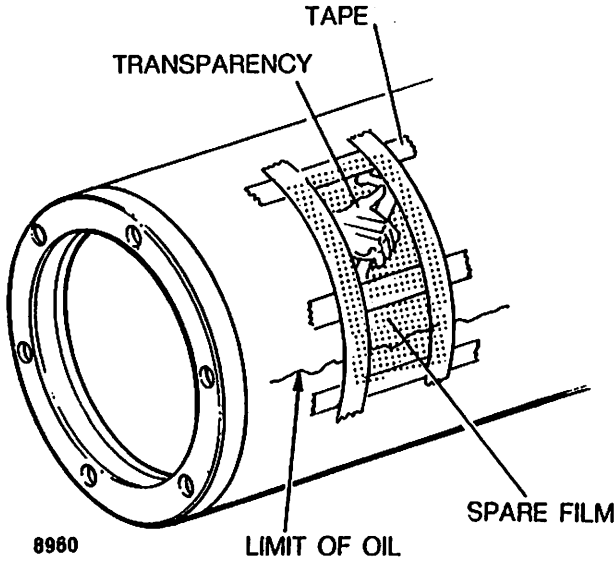


Figure 4.5 Mounting a Transparency with Liquid Paraffin

Scratched Transparencies

The effect of scratches on a transparency can be reduced by mounting the transparency on liquid paraffin. This is recommended in any case when making enlargements exceeding 350%, to eliminate Newton's Rings. The technique will be effective for scratches on the inner face of the transparency which lies next to the cylinder surface.

There are two ways to reduce the effect of scratches on the outer face of the transparency. The transparency may be overlaid with clear film, using more liquid paraffin. Alternatively, the operator can rub a little petroleum jelly carefully over the surface to fill the scratches, after the transparency has been mounted on the cylinder.

4.3.3 Mounting Multiple Transparencies

When mounting multiple transparencies, the same procedure as outlined in Section 4.3.2 should be carried out. It is recommended that the transparencies are distributed evenly around the surface of the cylinder to improve dynamic balance and reduce vibration. This is particularly important when using the large cylinder.

Page Composition Requirements (646 option)

Use the Input Scanning Sheet (see Table 4.1) to record all information about each picture. It is important to know the page format (upright or sideways, positive or negative, normal or reversed) because that determines how the pictures must be set up. Enlargement, mounting angle, and scan direction must be specified accurately in advance, because they cannot be altered once the picture has been scanned.

It is essential to mount the transparency on the analyse cylinder at the correct angle to the horizontal, because once the image has been scanned its angle cannot be altered.

Table 4.1 Studio 800/900 Series Input Scanning Sheet (646 only)

Date	28.8.87	**Page No.**	8	**Disks**	Pack 2 & 5
Customer	Crosfield	**Page Size**	A4 210 x 297 mm		
Job	Catalogue	**Page Format**	Sideways		
					Sheet.....of ....

Feature No.	Description	Wrong/right reading	Size %	Resolution	Sp. Scanning Instructions
1	Girl's head	Right	250%	MO R6	Reduce magenta const - set cut-offs as customer's layout.
2	Bar of soap	Right	347%	MO R6	
3	Country View	Right	200%	MO R6	Clean up green trees.
				Continuation	YES NO

4.3.4 Cylinder Changing

The cylinder cannot be released unless the cylinder rests are in the correct position.

1. Press:

   If

   is displayed,

Respond:

Press:

If

is displayed,

Respond:

The carriage will move towards the right-hand limit.

The scanner automatically checks whether the cylinder is rotating. If it is, a **Cylinder Rotating ?** message appears and the cylinder is not released. If the cylinder is not rotating the scanner bleeps six times and the carriage moves further to the right, releasing the cylinder from the hubs onto the cylinder rests. A message appears:

2. Remove the cylinder and return it to its box.
3. If the cylinder rests are in the down position, put them upright. **The machine will not traverse with the cylinder out and the cylinder rests down.** Move the carriage to the left, so that the centre optics ('scanning') lens can be reached.
4. If necessary, retract the analyse lens. Press the plastic button down and push the lens tube slightly backwards. Release the button. Continue to push the lens tube backwards until it locks in the retracted position.

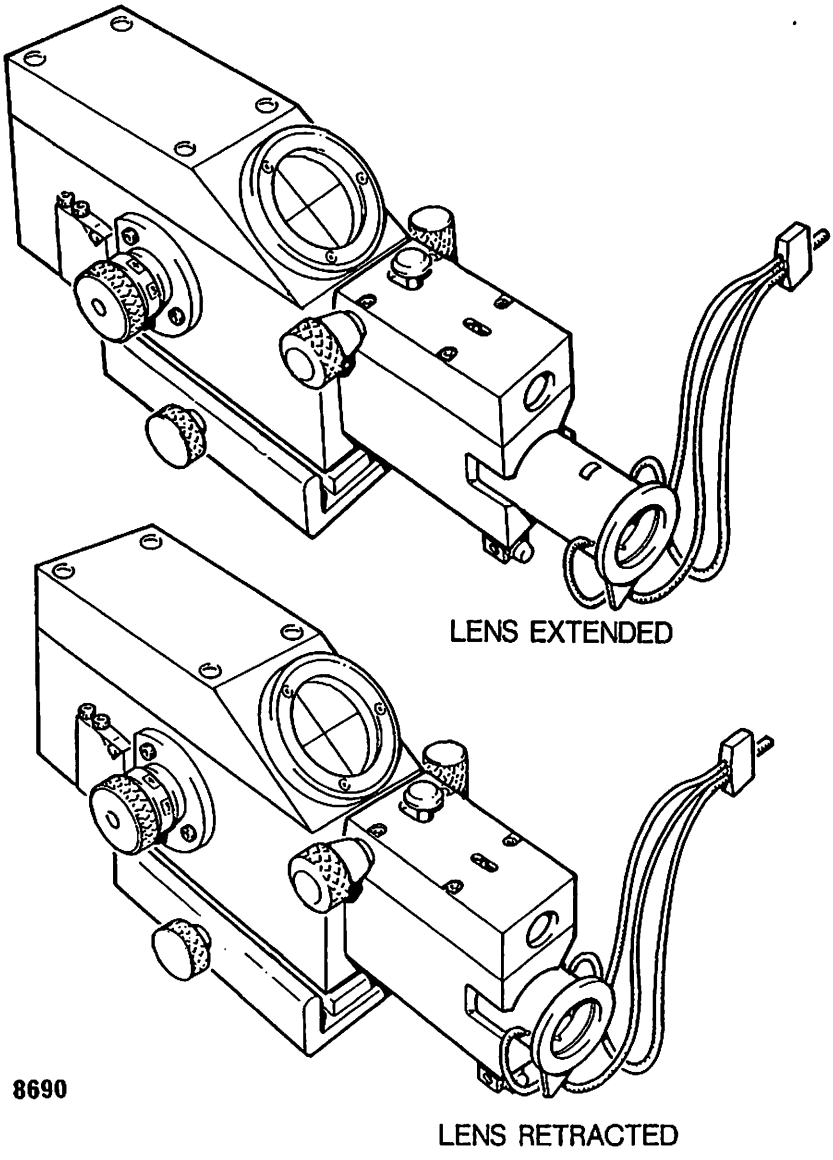


Figure 4.6 Analyse Lens Positions

5. Remove the scanning lens:

   With the left hand, pull the spring-loaded retaining pin at the end of the centre optics tube and hold it.

   Withdraw the scanning lens by sliding it out of its location. Place the scanning lens in its box.

6. Insert the other scanning lens or the blanking plug.

   On the new lens you will see a shallow slot called a keyway, running down the barrel. This keyway locates on a pin inside the body of the centre optics tube.

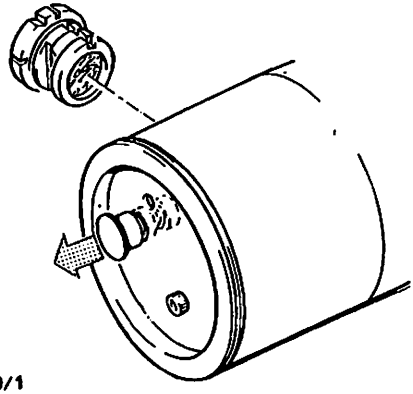
   Hold the lens by the collar with the keyway uppermost. Pull the retaining pin outwards and insert the lens. Gently push the lens into position (it may be necessary to rotate the lens a little to find the correct location) and release it when it is firmly seated. Release the retaining pin.

   The lens should now have only a small amount of rotational movement and it should not be possible to move the lens into or out of the centre optics tube.

7. If the small cylinder is to be loaded, move the analyse lens to the extended position.

   Press the plastic button down and pull the lens tube forwards, slightly. Release the button. Continue to pull the lens tube forward until it locks in the extended position.

8. Move the carriage to the right again so that the cylinder may be inserted.



8690/1

Figure 4.7 Scanning Lens Removal

CAUTION

Always check that the cylinder rests are SECURE in the correct position, whenever their position is changed.

9. If the large cylinder is to be loaded, put the rests down (see Figure 4.9).
10. Place the new cylinder into position on the cylinder rests. Turn the hub to line up the locating ball on the hub with the slot in the left-hand end of the cylinder. **Do not** turn the cylinder on its rests as this will damage the cylinder surface. Locate the large cylinder (if used), so that its left-hand rim is within 4 mm of the sensor face, or the carriage will not traverse.

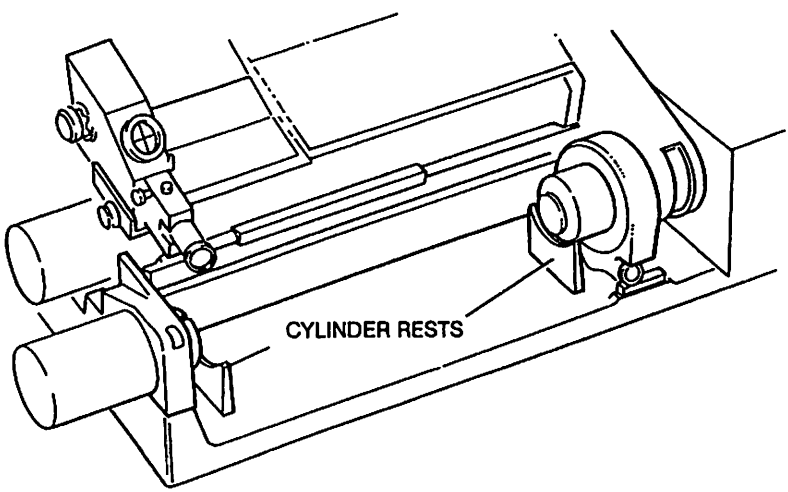


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Figure 4.8 Position of Rests for Loading Small Cylinder

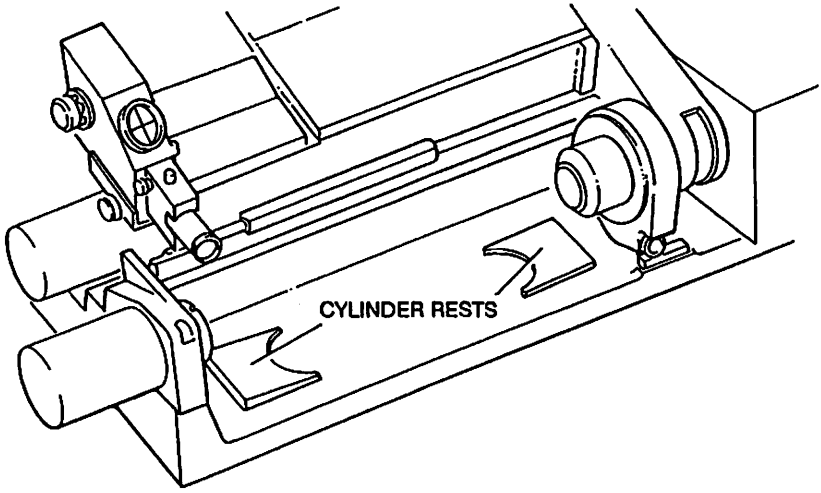


Figure 4.9 Position of Rests for Loading Large Cylinder

11. Check that the analyse lens is in the correct position for the new cylinder.

CAUTION

This check is essential at this point to avoid damage to part of the machine.

A lens position sensor prevents carriage traverse if the large cylinder is loaded **and** the lens is in the forward position.

12. Press: DATUM SEARCH

    Press:

    The hubs will move towards the cylinder. Check that they engage the cylinder correctly, with the locating ball and pin seating properly in the cylinder slots.

13. Check the analyse head position using **[CAL] 40**, View Scan Spot. (See Section 4.4.3.)

14. Check the analyse lens focus. (See Section 4.4.1.)
15. Autobalance. (See Section 5.9.)
16. Rotate the cylinder through one complete turn. This is necessary to set its angular position in the scanner's computer. The scanner will then be ready for production.

4.4 ANALYSE OPTICS PROCEDURES

4.4.1 Setting Focus, Aperture and Filter

1. If necessary, mount a transparency, emulsion-up on the analyse cylinder. (See Section 4.3.2.)
2. If necessary, load the cylinder. (See Section 4.3.4.)
3. Press: if necessary, and traverse the analyse head to view the transparency in the View screen.
4. Turn the analyse head focus adjuster to obtain sharp focus at the centre of the cross-hairs.
5. Press: again to return to the monitor mode.
6. Set the analyse aperture according to the Scanner Fact Chart (Section 10.1.1). The aperture knob is at the rear left-hand side of the analyse head. The number of the aperture required should be adjacent to the red spot on the side of the analyse head.
7. Set the analyse filter according to the Scanner Fact Chart. The filter knob is at the rear right-hand side of the lamphouse. The number of the filter required should be adjacent to the white spot on the side of the lamphouse.

4.4.2 Adjusting Lamphouse Optics

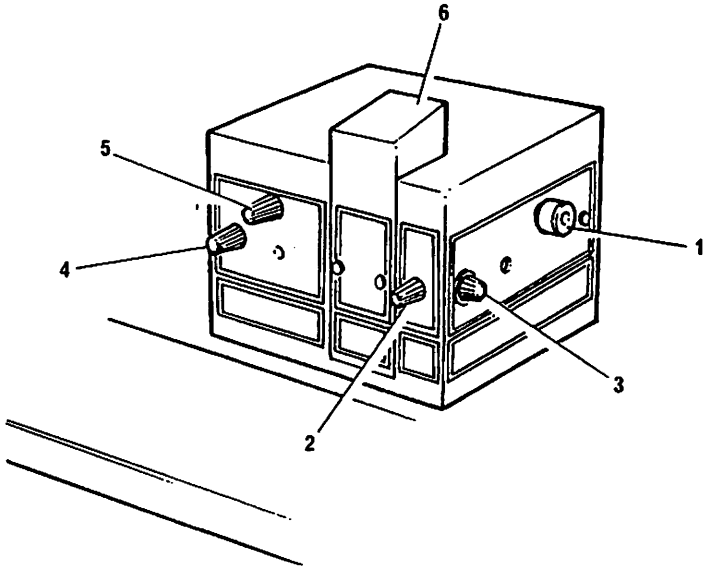
The lamp is in a fixed position and cannot be adjusted. The lamphouse optics are adjusted to achieve optimum light output.

The adjustments should be made after a lamp change. After switching on a new lamp, allow at least ½ hour (preferably longer), for the temperature to stabilize, before making adjustments. These should be repeated every few hours until the lamp is stable. Thereafter, weekly adjustment will suffice.

4.4.2.1 Transmission Copy

1. Fit the large cylinder.
2. Check that the scanning spot is centred on the cross-hair using the **[CAL] 40** described in Section 4.4.3. Use analyse aperture 4D.

Note: If machine fails to autobalance due to poor lamp position, a lower density lamphouse filter should be selected (e.g. C, B or A).



1. Neutral Filter Knob
2. Transmission Alignment Control (A)
3. Transmission Alignment Control (B)
4. Reflection Alignment Control (A)
5. Reflection Alignment Control (B)
6. Lamp Cover

Figure 4.10 Location of Lamphouse Controls

3. Enter **[CAL] 41** or **[CAL] 42** to give a density readout of approximately 0.4 or 2.4 respectively. Set the lamphouse adjusters A and B so that minimum density read-out is observed on the Magenta channel.
4. Autobalance now using 4D, if this was not achieved in Step 2.
5. Enter **[CAL] 41** or **[CAL] 42** and note the original density read-out on the Magenta channel. Turn the lamphouse transmission adjuster B anti-clockwise until this read-out increases in density by between 0.10 and 0.15. De-select CAL 41 or 42 by pressing **[ENTER]**. Press **[STOP]**.

4.4.2.2 Reflection Copy

1. Fit reflection copy blanking plug and large cylinder. Mount white reference patch on cylinder (e.g. Part No. 5511-4140, or other white copy will do), and focus on it.
2. Press:

   Set the analyse aperture to 5

   Press:

   Press:

   Note: If machine fails to autobalance due to poor lamp positioning continue anyway.
3. Enter **[CAL] 41** or **[CAL] 42** and observe density readout on Magenta. Turn lamphouse reflection adjusters A and B for a minimum. De-select CAL 41 or 42 by pressing **[ENTER]**. Press **[STOP]**.
4. If autobalance was not achieved for transmission copy re-check autobalance now.

Note: The selection of a density of between 0.10 and 0.15 moves the lamp cathode image away from the analyse lens aperture and sets the xenon arc to a stable position.

4.4.3 Centering the Spot

1. Enter **[CAL] 40** and press **[ENTER]** to select **VIEW SCAN SPOT.**
2. The scan spot will appear in the viewer. Use the analyse head adjusters to bring the spot to the centre of the cross-hairs.
3. Perform an autobalance.

This adjustment should be made every morning at start-up and periodically through the day.

It should always be made whenever the analyse cylinder is changed.

Note: Do not try to centre the spot by observing minimum density readings. This can cause inaccurate alignment and colour tracking errors.

4.4.4 Setting Vertical Resolution

There are four vertical resolution modes:

M0 is the standard resolution for normal analyse to expose scanning and suitable for most jobs.

M1 is the standard resolution for analyse to disk scanning.

M2 is the high resolution for analyse to disk scanning, for enlargements up to x12 only.

M3 is the high resolution for analyse to expose scanning, used to enhance fine detail or if high enlargement is required. The analyse and expose cylinders rotate at half their normal speed and an expose sequence will take double the normal time. This option can be specified on scanners with E output units but not M units.

Press: CAL

Enter: 304

Press: ENTER

Select: 0, 1, 2 or 3

Press: ENTER

To leave the mode unchanged, Press: ENTER

Note: Re-calibration of Laser Power will be necessary.

4.5 EXPOSE OPTICS PROCEDURES

4.5.1 Setting Cylinder Size

626/636/646 E units have a standard cylinder, coded 0. 626/636/646 M units have a larger cylinder, coded 1.

626/636 only

The cylinder size is stored in the software. Therefore, operator setting of cylinder size is not required.

646 only

Normally the system computer does not need to be told cylinder size. However, the following procedure allows large format images, e.g. certain text originals, to be scanned to disk.

Press:

Enter: **895**

Press:

Press:

to change the selection to Maxim output

Press:

to keep the current selection and leave the display.

4.5.2 Setting Expose Turret Type

Both E and M units have a modified R type expose turret, which has three settings only, A, B and C. A set of screen rulings is available for each scan rate/expose turret combination. Use the output functions to select the screen ruling required. (See Chapter 5.)

Although it is not normally necessary to re-set the expose turret, occasionally the need may arise (if outputting to an early EDG expose unit). To set the expose turret identification proceed as follows:

Press:

Enter: **897**

Press: [ENTER]

SELECT TURRET
S=0, R=6, ABC=3

Press: [KEYPAD] then [SCAN RATE]

4.5.3 Select Units

You can enter rulings in lines/inch or in lines/cm, provided that you have set the scanner accordingly. The rulings will be displayed in the chosen units. When in monitor mode:

Press: [CAL]

Enter: **893**

Press: [ENTER]

INCHES IN RULING
IN = 0 CM = 1

For lines/cm,

Press: [1]

CM IN RULING
IN = 0 CM = 1

Alternatively, if the rulings are displayed in lines/cm and you want to work in lines/in:

For lines/in,

Press: [0]

To return to monitor mode,

Press: [ENTER]

4.5.4 Setting Laser Power

Laser power can be set either at the analyse keyboard or at the expose keyboard. Note that a modified form of analyse keyboard is fitted to an expose unit if it forms part of a stand-alone output scanning station.

To prolong laser life it is automatically switched to Standby mode after half an hour of non-exposure, and whenever is selected. The laser is automatically switched back to Run mode if either **[CAL] 46** is entered or **[EXPOSE]** is pressed on the analyse unit.

The laser power, set by use of CAL 46, is remembered by the scanner, even if switched off.

CAL 47 alternately selects the Run or Standby mode. (See Section 4.5.4.2.)

4.5.4.1 CAL 46 Procedure

To switch laser to Run mode at the previously entered power,

Press: CAL

Enter: **46**

POWER = 5.2 mW
NEW POWER =

Press: ENTER

To switch laser to run mode at a new power (mW), the value entered should include a decimal point and decimal digit, e.g. 3.0:

Enter: **n.n**

Press: ENTER

CURRENT = n.nA

If the entered power is too high or too low:

POWER NOT ATTAINED
LASER TO STANDBY

If the laser current would exceed 9.0 A at the entered power you can confirm or deny your entry.

POWER = 5.2 mW
@ 9.0A RUN Y/N

Note: As the laser current rises above 8 A, the laser is nearing the end of its useful working life and requires replacement. The laser

can be run at this current but you should contact Crosfield or their appointed agents. The current should not exceed 9 A.

If **[CAL]** is pressed on the expose unit:

If the expose unit is not switched on or not connected:

If there is more than one expose unit:

Enter the number of the expose unit whose laser power is to be set.

4.5.4.2 CAL 47 Procedure

With the laser on standby:

Press:

Enter: **47**

Press:

With the laser on run:

Press:

Enter: **47**

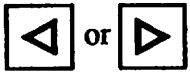
Press:

to switch the laser to standby

4.5.4.3 Expose Unit Procedure

Press:

The display alternates between CAL and the current laser power. To increase or decrease the power slowly

Use:  or

To change power quickly, Press **[FAST]** at the same time. Press **[CAL]** again, to exit from this mode.

4.6 FILM PROCEDURES

4.6.1 Loading Film

This procedure describes the loading of film on units which have both the loading brush and pressure roller assemblies.

1. Ensure that the cylinder is clean.
2. Press the **VACUUM** button to turn on the vacuum pump.
3. Rotate the cylinder by hand to bring the film register-pins near the top. (They should be at least 5 cm ahead of the loading brush or pressure roller, so that the cylinder can reach a suitable speed.)

CAUTION

Note the following procedures before proceeding with the next step.

To avoid film fogging:

- **Turn of all room lighting except for safe lights suitable for the film to be used.**
- **If the analyse unit is in the same room as the expose unit, ensure that any panel lights are turned off (using CAL 0).**
- **If the system is fitted with a Quickview terminal turn off the screen by pressing the spacebar.**

To avoid misregister between colours:

- **When punching a film, always ensure that the film is laying flat on the punch base.**
- **Only punch one film at a time.**

4. Select a sheet of film and use the film punch to punch register holes into the longer edge.
5. Pull the film-loading bar into the forward position. On units with a brush loader the brush is linked to the roller and will be brought down against the cylinder.
6. Locate the punched film on the register pins. The film should trail over the film-loading bar.

7. Press the **LOAD FILM** button and hold it down. The cylinder will rotate slowly. On pressure roller type units the pressure roller will come down against the cylinder before rotation starts..

   Note: If non-standard sizes of film are used and the vacuum ports on the cylinder are not covered sufficiently, it will be necessary to tape the leading and trailing edges of the film to the cylinder. See Table 4.2 for suitable film sizes.

8. When the film is loaded, release the **LOAD FILM** button. Check that the film is in perfect contact with the cylinder. Move the film-loading bar back above the expose cylinder and close the lid.

4.6.2 Unloading Film

1. Rotate the cylinder by hand to bring the trailing edge of the film to an accessible position.
2. Pull the film-loading bar into the forward position.
3. Press the **VACUUM** button to switch off the vacuum pump.
4. Lift the trailing edge of the film off the cylinder and draw the film gently over the film-loading bar until it can be withdrawn.

4.6.3 Film Sizes

Table 4.2 gives guidance as to film sizes which the vacuum system can hold on to the expose cylinder, without adhesive tape. Slight variations from the quoted sizes are permissible, provided that the appropriate vacuum channels are covered by the film. If in doubt, consult Crosfield's Field Support Department.

Table 4.2 Intermediate Film Sizes (Nominal)

626E/ (mm) 636E/ (mm) 646E/ (mm)	626M/ (mm) 636E/ (mm) 646M/ (mm)
250 x 658	356 x 1067
511 x 658	510 x 1067
611 x 658	610 x 1067
*711 x 658	710 x 1067
	*845 x 1067

*Full Format

Note: Reference to the actual cut film size, rather than the manufacturer's quoted size, should be made due to variation in the different manufacturer's tolerances.

4.7 MULTIPLE EXPOSE UNITS

The procedures described in this section are only applicable if more than one expose unit is connected to the scanner.

When the scanner system is switched on the following information is initialized:

1. Which of the four expose ports has an expose unit connected.
2. The type of expose unit connected (E or M) to each port.

If only one expose unit is connected to the system the normal sizing, editing and exposing technique (see Chapter 5) is carried out.

4.7.1 Format and Colour

Press: [EXPOSE] on the analyse unit.

The keyboard display will show the allocation as used on the previous expose in the current format, 1-up, 2-up or 4-up (not 3@), for example:

for 1-up format

for 2V or 2H format

for 4@ format

E1 to E4 are the expose units in their connected order with C, M Y and B representing the separations in the order in which they will be exposed on each expose unit. When an expose unit has no separation quoted against it then the unit is not allocated for expose. When the analyse unit is switched on, only the connected expose units will be allocated by default.

If the current format is satisfactory:

Press: [ENTER] on the analyse unit.

Then press [EXPOSE] on the expose unit and the expose sequence will run to completion.

If the format needs to be changed:

E1 ?	E2 ?
E3 ?	E4 ?

Select: **1, 2, 3 or 4** as required

assuming the required format to be 1-up.

The expose unit number will not be accepted if the port is not connected, or if the expose unit is not compatible with the current scan rate.

The separation colour needs to be allocated to the expose unit.

Enter: **1 [B]**

E1 B	E2 ?
E3 ?	E4 ?

assuming black separation to expose unit one.

If this arrangement is satisfactory, Press [ENTER] and continue allocating separation colours to expose units.

4.7.2 Changing Expose Units

This procedure is applicable to installations with mixed types of exposure units only. It is designed to inform the system computer of the type of separation required.

To change expose units.

Press: CAL

Enter: **910**

Press: ENTER

SELECT EXPOSE UNIT
Y/N

To revert to the monitor mode, Respond by pressing [NO].

If [YES] is entered the display will indicate the current status i.e.

If a standard expose unit is connected to port one.

If a maxim expose unit is connected to port two.

One of those messages will be displayed. To change the expose unit:

Enter: **1, 2, 3 or 4** as required.

The display will then show the new status of the units. Pressing **[ENTER]** will return the display to the monitor mode.

If the current format is 2-up or 4-up then the colours will show against the appropriate expose unit in the order in which they will be exposed. This order can be changed before exposure by using the **[FORM]** or **[POSN]** buttons as directed in Section 5.6 of this manual.

Expose units may be allocated additionally for simultaneous exposure of the same or different colour separations as long as they are all of the same type.

The expose sequence can be aborted at any time by pressing **[STOP]** on any unit.

4.8 PRINTER PROCEDURES (Scan Stations Only)

4.8.1 Ribbon Replacement (LX 80)

See Figure 4.11

1. Raise (or remove) the printer lid.
2. Check that the scale (paper retainer) is pushed against the paper/platen.
3. Hold the old ribbon cartridge by the plastic projection in its centre. Lift the cartridge off the printer and remove.
4. Hold the new ribbon cartridge by the plastic projection in its centre. Place the cartridge in position on the printer, with the ribbon between the head nose and the ribbon mask. Press the cartridge down into position. The ribbon can be positioned using a pencil or ball-point pen.
5. Tension the ribbon by turning the ribbon feed knob anticlockwise. Check that the ribbon is neither twisted nor creased and is set at the right height.
6. Lower (or replace) the printer lid.

4.8.2 Paper Loading (LX 80)

See Figure 4.11

1. Raise (or remove) the printer lid.
2. Pull the scale away from the platen.
3. Set the paper guide roller centrally for the paper to be used.
4. Raise the two paper holding covers. Feed the paper between the separator and its roller, then between the paper guides and underneath the platen, until several inches of paper emerge at the front of the printer.
5. Raise the two sprocket locking levers and position the sprockets so that the sprocket teeth engage in the paper holes. Push the scale back onto the paper. Adjust the sprockets slightly (if necessary) so that the paper is held taut between them, then lower the locking levers.
6. Lower the two paper holding covers and lower (or replace) the lid.

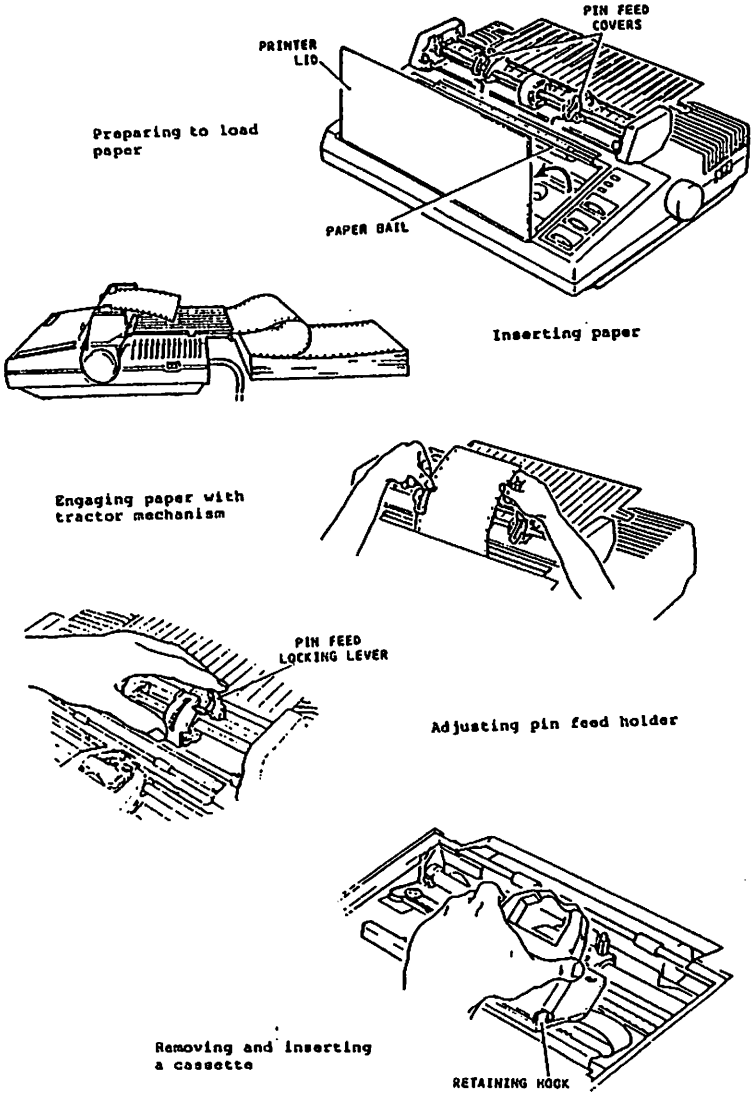


Figure 4.11 Printer Procedures, LX 80

7. Wind the paper through the printer with the paper feed knob so that the paper will fall into the required position as it leaves the printer.

4.8.3 Paper Unloading (LX 80)

Paper can be unloaded from the printer in two ways. It can be pulled forward, out of the printer, in its normal direction of travel. It can also be unloaded using the Line Feed button, when the power is switched on.

CAUTION

Do not attempt to pull the paper from the printer in the backward direction.

4.8.4 Self-Test (LX 80)

1. If necessary, switch the printer Power switch to **OFF**.
2. Keep the **LF** switch pressed down and switch the printer power switch to **ON**.

4.8.5 Ribbon Replacement (LX 800)

At initial start up, or when the printout becomes too faint to be read easily, a new ribbon should be loaded as follows.

1. Switch the printer off.

CAUTION

The printer may be damaged if the print head is moved manually when the printer is on.

WARNING

If the printer has recently been in use the print head will be hot.

2. Lift off the lid covering the printer head and ribbon.
3. Manually push the print head carriage to the centre of its movement.

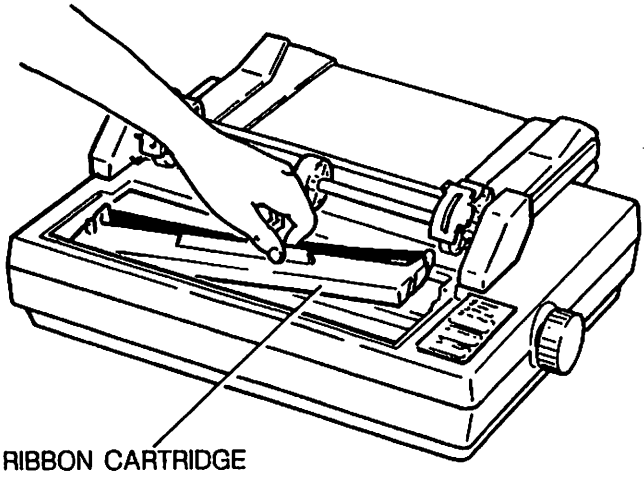


Figure 4.12 Removing the Ribbon Cartridge from the Printer, LX 800

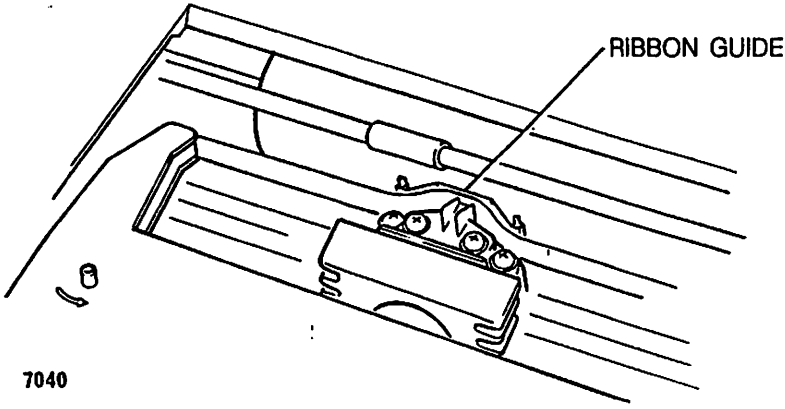


Figure 4.13 Locating the Ribbon around the Print Head, LX 800

4. To remove the old cartridge, grip the plastic tab as shown in Figure 4.12, and lift out.
5. Push the new cartridge firmly into position, making sure it fits over the ribbon feeder knob. To find the knob, look down into the printer; it is an upright plastic knob towards the left.
6. Use a pencil, paper-clip or your fingers to guide the ribbon between the print head and the ribbon mask, making sure that the ribbon is not creased or folded.
7. Ensure that the ribbon is tight by turning the feeding knob anticlockwise.
8. Move the print head backwards and forwards along the carriage to check that the ribbon is installed correctly.
9. Replace the front lid and switch on the power.
10. If the On Line lamp is not lit, press the **ON LINE** button to establish control by the computer.

4.8.6 Paper Loading (LX 800)

At initial start up, or when the printer runs out of paper (Paper Out indicator light and beeper warning), paper must be loaded as follows.

1. Switch the printer off.
2. Remove the front lid and the paper feed guide.

CAUTION

The printer may be damaged if the print head is moved while the power is on.

WARNING

If the printer has recently been in use the print head will be hot.

3. Push the print head carriage to the centre of its movement.
4. Open the pinfeed covers at each end of the platen.
5. Insert the paper from the back of the printer. Push it under the platen, until it appears in front of the pins on the tractor unit.

6. Line up the holes in the paper with the pins on the feed wheels and close the pin feed covers.
7. Fit the sheet guide into the slots on top of the printer. Make sure that it lies flat.
8. Turn the paper feed knob and feed the paper over the paper guide.
9. Move the paper, using the manual feed knob, until the first line of perforations appears on the platen. When you turn the printer on, it remembers this position and keeps track of how far the paper has been advanced. This way, when you want to advance to the top of the next page it always knows how far to move the paper. If you advance the paper using the paper feed knob while the power is turned on, the printer will lose track of the top-of-page position.
10. Close the front lid and switch on the power.
11. If On Line lamp is not lit, press the **On Line** button to establish control by the computer.

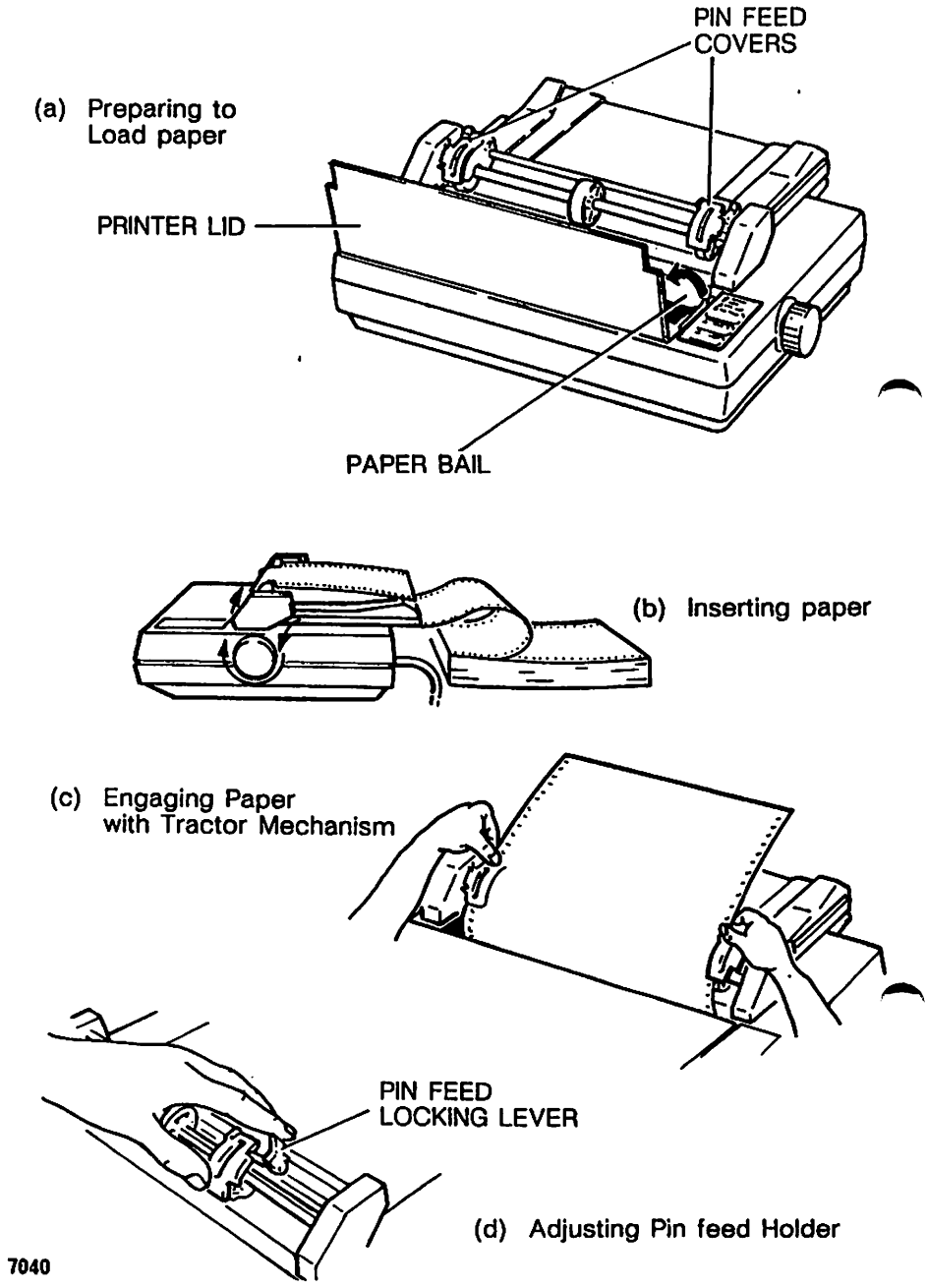


Figure 4.14 Loading Paper in the Printer, LX 800

4.9 CDC 300-MBYTE DISK UNIT PROCEDURES

4.9.1 Disk Pack Loading

See Figure 4.15

The disk pack must be loaded before the disk drive is operated. The pack is set on the drive spindle (pack mounting plate), and rotated until the pack lock-screw is locked to the spindle lock-shaft.

CAUTION

Disk packs should only be loaded or unloaded in dust-free surroundings. Handle packs carefully by their covers only. Do not touch the disks.

1. If necessary, purge the disk drive unit (see Section 8.6.4).
2. Wait at least two minutes, press the latch and raise the disk drive lid.
3. Disengage the bottom dust cover from the disk pack by squeezing the release mechanism levers in the centre of the cover.
4. Check that the read/write heads are fully retracted. Lower the top cover and disk pack carefully onto the pack mounting plate. Turn them clockwise until the pack is firmly screwed into the spindle lock-shaft.

   Note: This disk pack top cover actuates a brake to hold the spindle stationary whilst the pack is loaded. A click is heard as the brake engages.

5. Lift the top dust cover carefully, clear of the disk pack. Store the top and bottom covers in a clean area of similar temperature and humidity to that of the drive unit room.
6. Lower the disk drive lid immediately to prevent entry of dust.
7. Purge the disk pack if necessary, as described in Section 8.6.4.

4.9.2 Disk Pack Unloading

Note: An interlock prevents the lid opening if the motor is running, or if there is no mains supply to the disk drive.

1. If necessary, switch off the disk drive by pressing the **START** switch on the drive unit control panel.
2. When the motor has stopped, raise the disk drive lid.
3. Place the top dust cover over the disk pack so that the post protruding from the centre of the disk pack enters the dust cover handle.
4. Turn the cover anticlockwise to unscrew the disk pack completely from the spindle lock-shaft.
5. Lift the top cover and disk pack out of the drive unit and lower the lid.
6. Fit the bottom dust cover to the disk pack and store in a clean area of similar temperature and humidity to that of the drive unit room. A cabinet in the drive unit room is preferred.
7. Replace the cartridge and close the lid.

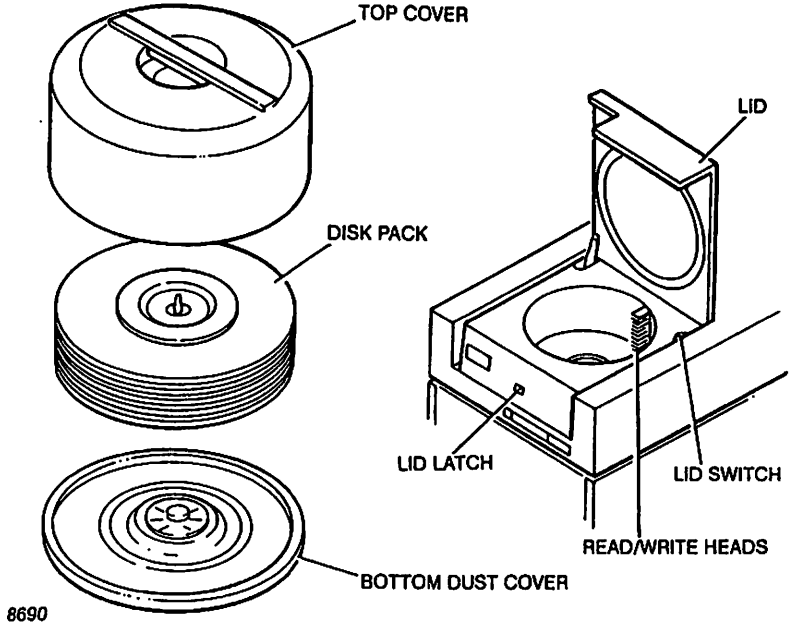


Figure 4.15 Disk Pack Loading

CHAPTER 5

ANALYSE UNIT - PHOTOGRAPHIC PROCEDURES

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CHAPTER 5

ANALYSE UNIT - PHOTOGRAPHIC PROCEDURES

5.1 INTRODUCTION

This chapter explains the operating procedures for 626, 636 and 646 analyse and expose units, using Version V9.32 software (V9.02 on the stand alone expose units). Procedures involving the Studio HSI and SDT with HSI/64 (including earlier variants) are described in Chapters 6 and 7.

The assessment of originals, especially transparencies, is never satisfactory if conducted with the transparency mounted on the cylinder. It should therefore be done before they are mounted. The final size that is required can be calculated in several ways by the scanner. Make any necessary measurements **before** mounting the transparency on the cylinder.

The computer needs a value for every parameter it is possible to set, and will use a default value (Basic Value) if the operator does not set a value of his own. A default value will be a typical value for the parameter in question, or a value that renders the parameter inoperative. The action of calling up a Customer Value (CV), will instruct the computer to use that CV as a default value. The operator may change the setting if he wishes, or he may leave the value as it is.

Photographic reference data is incorporated in Chapter 10.

5.2 CALIBRATION

So that the scanner can produce consistent results, two modes of calibration are available. These cope with the variations caused by ageing of lamps or changes in films or processor.

The two main calibration modes are:

a) **Input Calibration** (Autobalance), when the scanner is calibrated to make it see neutrals as neutrals etc. This is a calibration process similar to that of a densitometer. See Section 5.9.

b) **Output Calibration**, which takes into account the variations of film and your film processor. This requires the Steps detailed in Sections 5.2.1 and 5.2.2.

5.2.1 Exposure of Electronic Grey Scale

Load film onto the expose cylinder.

On the analyse unit, press: [CAL] then [EXPOSE]

Press [EXPOSE] on the expose unit to output the 32-Step grey scale.

5.2.2 Step 16 Daily Update

Expose the electronic grey scale and measure the dot% (x) of Step 16. This should be 48%. Any error should be corrected by adjusting the laser current, using CAL 46 (see Section 4.5.4). Repeat the grey scale exposure and Step 16 measurement to confirm that it is now 48%. At 48% (Step 16) the dots are not quite joined. At 52% (Step 17) the dots are just joined. Badly calibrated densitometers and charts that are not correct for particular densitometers will give bad calibration.

5.3 POSITION, TRAVERSE, ENLARGEMENT AND FINAL SIZE

Mount copy squarely on the cylinder. Be careful not to unbalance the cylinder.

An analyse cylinder may be unbalanced by copy which is mounted on it. Severe vibration may occur when the cylinder is turning at full speed. In some cases the Alphanumeric Display may show the message **A SPEED**, meaning that synchronous rotation has not been achieved. The problem is most likely to arise when reflection copy is mounted on the large cylinder. Place a similar size copy or blank material at 180° spacing around the cylinder.

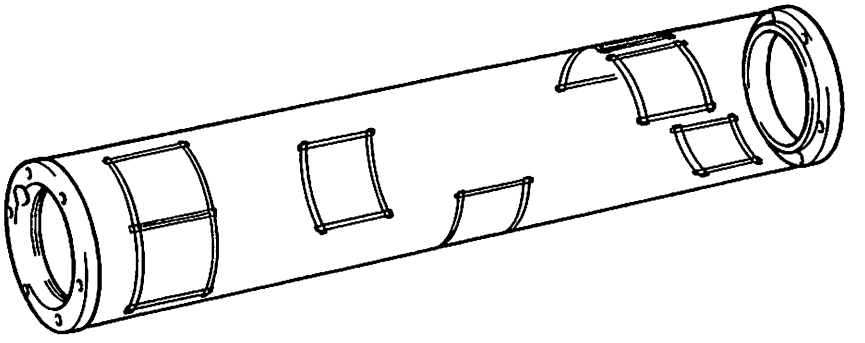

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Figure 5.1 Small Cylinder with Copy Mounted

You must enter specific size and position values for each original, so that you only scan the part of the cylinder that you require.

Separations can be produced with the exact cut-offs for the (rectangular) shape that you require.

Note: If the scanner has just been switched on, or if the analyse cylinder has been changed, rotate the analyse cylinder through one complete turn, in either direction so that the scanner can locate its rotational DATUM position. **If this is not done position entry is likely to be corrupted.**

You may not require accurate cut-offs, or it may be difficult to mount a picture squarely (e.g. 35 mm transparencies) on the cylinder. Check that the dimensions you set will define an area on the cylinder which includes all the final picture required.

5.3.1 Defining Scanning Area Co-ordinates (Original)

There are two parameters that must always be set. These are a horizontal imaginary start line and a vertical datum line close to the edge of the cylinder, see Figure 5.2. The scanner uses these parameters as reference data when making positional calculations. The large rectangle in the Figure represents the analyse cylinder as it would appear if it were opened out and laid flat.

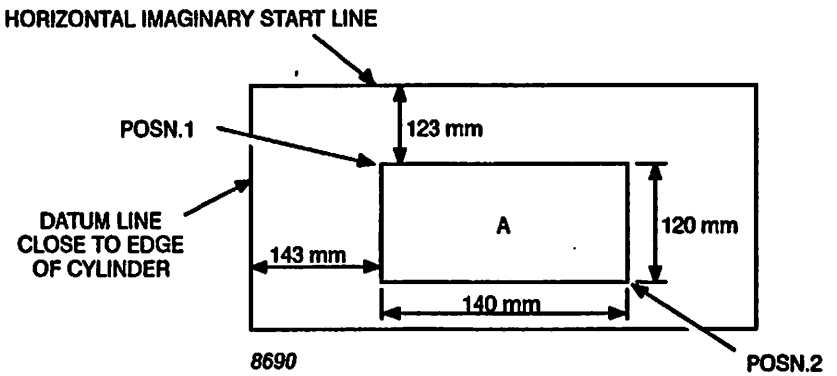


Figure 5.2 Analyse Cylinder Datum Lines and Position Parameters

Point the analyse head at the corner of the required area corresponding to position 1 of copy A of Figure 5.2. To do this, use buttons,

◁ , ▷ and FAST as required (for horizontal alignment) and rotate the cylinder (for vertical alignment).

It can be difficult to find a point on a transparency using the view-screen. As an aid, lines are engraved around the circumference of the outer and inner faces of the diffuser in the centre-optics tube. The outer line is red and the inner line black. Without the aid of the view-screen, align these two lines and the horizontal image position on the transparency. Rotation of the analyse drum will then bring the required point on the transparency within the area of the view-screen. Fine alignment can then be made.

If it is found difficult to perform this fine alignment the traverse speed may be adjusted. See Section 5.3.3.

Press: [POSN]

The co-ordinates for position 1 of copy A now appear as shown on the lower line of the Alphanumeric Display, defined to the nearest 0.1 mm relative to the leftmost point on the imaginary start line.

Enter position 1 of copy A, thus:

Press: [ENTER]

The display now shows **2** instead of **1** on the lower line. The zero values for V and H indicate that you are still pointing the analyse head at the entry point for position 1.

Point the analyse head at position 2 of copy A. To do this, rotate the cylinder and use buttons

[◁], [▷] and [FAST], as required.

Check with the View aperture of the analyse head that the head is pointing correctly, adjusting if required. The second line of the display now shows the co-ordinates of position 2 of copy A relative to position 1.

To enter position 2

Press: [ENTER]

The display is returned to the monitor mode.

Note: If you pressed **[ENTER]** when the analyse head was pointing at the wrong position, correct as follows:

Position 1 error. Press **[ENTER]** to exit from the Position mode, then press **[POSN]** to re-enter the Position mode. Re-enter both position 1 and position 2.

Position 2 error.

1. Re-enter the Position mode, aiming at Position 2 thus:

   Press: [POSN]

   Enter: 2

2. Re-define co-ordinates of position 2.
3. To enter position 2 and exit from the Position mode:

   Press: [ENTER]

5.3.2 Analyse Carriage Traverse

To obtain slow traverse:

Press and Hold: [◁] or [▷]

To obtain fast traverse:

Also Press and Hold: [FAST]

5.3.3 Slow Traverse Speed Adjustment

The slow traverse speed can be adjusted. A slower speed than the default level may assist the accurate positioning of the analyse head. To enter a new slow-traverse speed, enter **[CAL] 882**. The slow traverse display appears indicating the current speed. (1 = slowest, 5 = fastest.) The default value is 3. Enter the speed level required. The main display returns:

```
SLOW TRAVERSE
SPEED <1·5>?3
```

5.3.4 Lost Position and Datum Search

The analyse unit may occasionally lose the position of the analyse head along the cylinder. This will be indicated by one of three symptoms:

a) When selecting Position 1, the operator may notice that the 'H' figure is obviously incorrect.

b) When both **[EXPOSE]** buttons have been pressed, the Alphanumeric Display may read **POSN ENTRY ERROR**. This message is also shown if enlargement and/or position is more than the expose film area permits.

c) The separations produced may not correspond to the area of original selected by the operator.

To remedy this condition use Datum Search. It is controlled by the Cylinder Release/Datum Search button.

Datum Search will re-set the carriage position counter. The Position of Original will then have to be re-entered.

Press:

Respond:

Press:

Respond:

Note: If **CYL RELEASE??** was the last question displayed, **DATUM SEARCH??** will be displayed as soon as you press the button.

The analyse carriage will then move to the far left and find its starting (or datum) position.

Alternatively, if the analyse carriage is close to the left-hand end of the leadscrew, manually traverse to the left-hand limit and then move the analyse carriage slightly to the right.

After every scanner reset, mains interruption, cylinder change, and datum search, rotate the analyse cylinder through one complete turn, to reset the cylinder position counter.

Datum search sets horizontal datum.

Cyl. rotation sets circumferential datum.

5.3.5 Setting the Final Size of Separation

Having selected the area to be scanned you must now determine the final size of the separation. There are two methods. You can set either enlargement or final size.

5.3.5.1 Enlargement Method

When the required enlargement value is known,

Press: [X]

Enter: **nn.nn** (where **n** is decimal digit)

Press: [ENTER]

The scanner has accepted the new enlargement value and has returned to monitor mode. The consequent output size can be checked.

To check the horizontal dimension, Press: [FINAL SIZE]

To check the vertical dimension, Press: [↕ YES]

If this final size is suitable, Press [FINAL SIZE] again to return to the monitor mode.

5.3.5.2 Final Size Method

This method is used when you know the final separation size (output size) required, but not the enlargement value. You have already entered POSN to define the size of the original to be scanned (input size).

You can define the final separation size using its horizontal dimension or its vertical dimension. Whichever dimension is used, the scanner will compute the other dimension to give the enlargement value. If different enlargement values for horizontal and vertical dimensions are then required, the picture distortion facility CAL 33 must be used (see Section 5.3.6).

Input and output sizes are displayed together to the nearest millimeter. An output size can only be entered from the keypad as a **whole number**, i.e. to the nearest mm. An attempt to enter an output size to the nearest 0.1 mm will give the error message:

For maximum output dimensions accepted by 626, 636 and 646 scanners, see Section 5.6.

Final Size From Horizontal Dimension

In this procedure the enlargement is obtained by entering the required horizontal size of the output image.

Press:

The first number is input size, the second is output size.

To retain this final size and return to the main display:

Press:

To change the final size, to 160 mm for example:

Enter: **160**

Press:

The scanner calculates and displays the new enlargement value, for your approval.

To retain this value,

Press:

The scanner has accepted the new enlargement value and has returned to monitor mode. If **[FINAL SIZE]** is pressed again output size will be displayed as 160.0.

Final Size From Vertical Dimension

In this procedure the enlargement is obtained by entering the required vertical size of the output image.

Press:

Press:

The display has changed to show input and output **vertical** dimensions. The remainder of this sequence is similar to the horizontal procedure previously described.

5.3.6 Picture Distortion

Sometimes the original has not got the necessary proportions to produce the required final size. For instance, you may have a square input but require a rectangular output (see Figure 5.3).

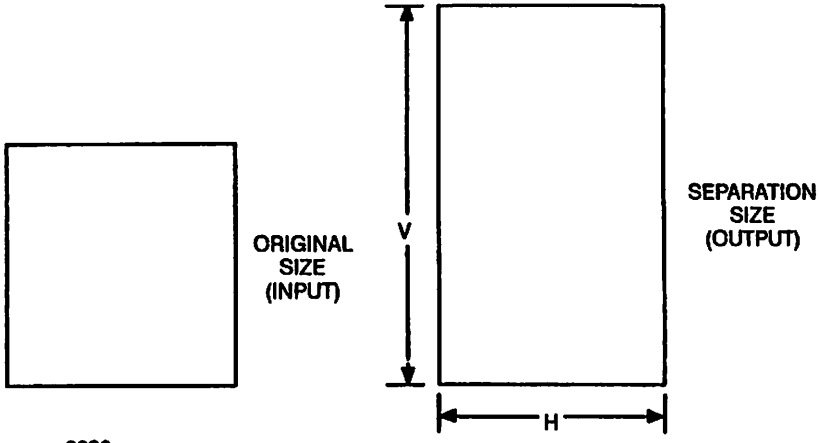


Figure 5.3 Picture Distortion

In this instance, CAL 33 allows you to enter one enlargement value corresponding to the horizontal dimension (H), and a different enlargement value corresponding to the vertical dimension (V).

If you do not know the horizontal or vertical enlargement values, these can be found by entering the final sizes as described in Section 5.3.5.2. Note the X values which appear in the final displays.

Press: CAL

Enter: 33

Press: ENTER

4@ 1.00 50 150
ENLARG H 01.00

If this current value is the one you require for horizontal enlargement,

Press: ENTER

If you wish to change the value, for example to 1.14:

Enter: 1.14

4@ 1.00 50 150
ENLARG H 01.14

Press: ENTER

4@ 1.00 50 150
ENLARG V 1.00

The vertical enlargement is now shown on the display.

If required, you can now change the vertical enlargement, using the same method. When ready:

Press: [ENTER] to return to the monitor mode

After leaving CAL 33 the top line of the display will show the horizontal enlargement. An * will also appear if the horizontal and vertical enlargements are not the same.

5.3.7 Micro-enlargement

Using Micro-enlargement to Compensate for Base Thickness Differences

The accuracy of the final size relies on the synchronization of the surface speeds of the analyse and expose cylinders.

When a transparency (mounted emulsion up) or reflection copy of 0.1 mm (4 thou inch) base thickness is scanned to a film which also has a base thickness of 0.1 mm, the original and scanned images will be the same size.

However, reflection-copy base thickness often exceeds the output film size. The analyse speed at the image surface will then be greater than the expose speed on the emulsion. The vertical size of the exposed image will be a little smaller than the original.

Although this slight distortion is not always important when scanning graphic images, it is often critical when input scanning text. Any inaccuracies can be overcome by using the micro-enlargement facility to adjust the vertical size.

Table 5.1 Vertical Micro-enlargement Factors for Base Thickness Compensation

Thickness Diff (mm)	Thickness Diff (thou inch)	Micro-enlargement
0.12	4.6	+1
0.23	9.1	+2
0.35	13.7	+3
0.46	18.3	+4
0.58	22.8	+5
0.70	27.4	+6
0.81	32.0	+7
0.93	36.5	+8
1.04	41.1	+9
1.16	45.7	+10
1.28	50.2	+11
1.39	54.8	+12
1.51	59.4	+13

Table 5.1 indicates the vertical micro-enlargement factors to be used when compensating for differences between input and output base thicknesses. These factors have been calculated for large analyse cylinders on E units. For large cylinders on M units it may be necessary to increase the factors shown in the table by one.

Changing Micro-enlargement

Micro-enlargement is only possible when the enlargement factor is set between 20 and 600%.

To view or change micro-enlargement settings:

Press: CAL

Enter: 39

Press: ENTER

ENTER VERT ENLRG MODIFIER: 0

To change the vertical micro-enlargement enter the modifier, -nn for a reduction in size or nn for an enlargement. Entries from -128 to 127 are permitted. Beyond this range corruption will occur. The default

value is zero. A correction factor of 1 unit is equivalent to a 0.1% change in enlargement. For example, to reduce the image size by approximately 1.2%:

Press:

Enter: **12**

To confirm the current vertical micro-enlargement:

Press:

If required, enter the new horizontal micro-enlargement modifier in the same form as the vertical modifier.

To confirm the setting as displayed:

Press:

The system returns to the monitor mode. An * appears on the display if the enlargement modifiers in the vertical and horizontal directions are not the same.

5.3.8 Solo Operation

To output jobs which have been set up on a Solo analyse unit, it is first necessary to align the cross hairs of the Solo reference mark with the view-screen cross-hairs. **[CAL]** and **[POSN]** buttons are then pressed. Full details are given in the Magnascan Solo Operator's Manual, 6700-2930.

5.4 SCAN RATE

The Scan Rate indicates the speed at which the expose carriage traverses the film. On expose units with electronic dot generation, screen rulings can be directly related to scan rates.

Expose units each have an expose turret, which has three settings only (A, B and C). A set of screen rulings is available for each scan rate/expose turret combination.

5.4.1 Output Resolutions

Select either imperial or metric output resolution using CAL 899. In this procedure enter **[YES]** or **[NO]** to a display prompt: **Change Y/N.**

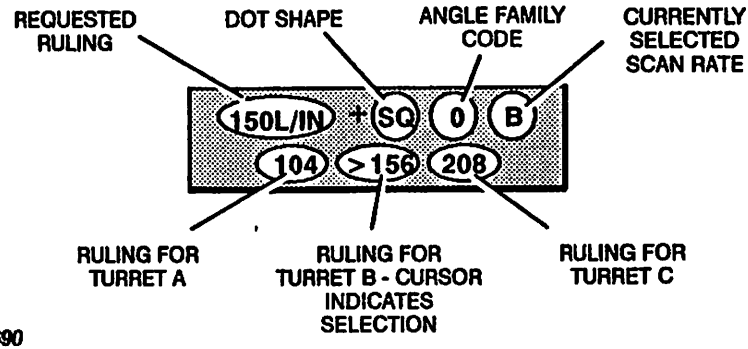
5.4.2 Output Functions

The Scan Rate output functions mode consists of a group of activities to set the laser for dot generation. The functions are processed in the following sequence:

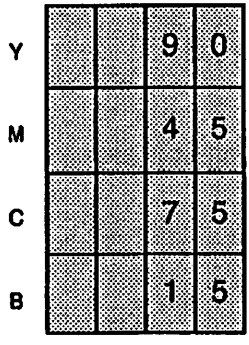
1. Screen Scan Rate
2. Dot Shape Code
3. Angle Code.

For detailed data on screen rulings, dot shape codes and angle family codes, see Chapter 10.

The mode is entered by pressing **[SCAN RATE]**. The sequence always enters at Screen Scan Rate (screen rulings function). The Alphanumeric Display will appear, typically:



The Current Value Display at the same time displays the angles from top row to bottom row in sequence Yellow, Magenta, Cyan, Black corresponding to the angle set code and dot shape. For angle set code 0 with square dot shape these would appear:



To Step forward or backward in the sequence,

Press: ▽ or △

To exit the Scan Rate mode, and return to the monitor mode,

Press: SCAN RATE

To change screen ruling units from lines/in to lines/cm, or vice versa, perform CAL 893 (see Section 4.5.3).

5.4.2.1 Screen Scan Rate

Unless you have already entered the cycle:

Press:

Briefly, then

The last requested ruling is shown on the top line. The nearest available rulings for scan rates A, B and C are shown on the bottom line.

The cursor indicates the actual ruling (156 lines/in) which will be output for the last requested scan rate as shown on the top line (150 lines/in).

Suppose you required a ruling of 100 lines/in for turret B.

Enter: **100**

Press:

To select a ruling for another turret scan rate

Press:

The cursor will shift to the right, to turret C scan rate.

If this is not the one you want, to select the remaining turret scan rate, i.e. A.

Press:

To move to the dot shape function

Press:

or

5.4.2.2 Dot Shape

The dot shape code is shown on the top line. The dot shape codes are as follows:

0 = Square (SQ). This is the default value.

1 = Elliptical (EL).

2 = Round (RN).

3 = Autotypical Gravure (GV).

To select the dot shape required, select: **0, 1, 2 or 3.**

Special Case - Elliptical Dot

A breakpoint (BP) is specified whenever the elliptical dot shape is selected. For example:

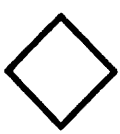
Any BP can be entered from 0% to 100%, in steps of 5%. For example:

Enter: 55

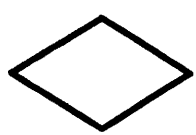
Press:

Note: The same BP results if 45 is entered.
A square dot results if 50 is entered.
An entry such as 42 will be rounded up or down to the nearest permitted value (40% in this case).

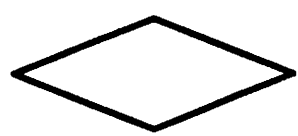
Examples of elliptical dot shapes are illustrated, following, for three different dot shapes. Remember the same elliptical dot shape is generated by complementary percentage Breakpoint numbers, e.g. 90 and 10, regardless which of the pair is selected.



55% / 45%



70% / 30%



90% / 10%

When the elliptical dot shape is selected the angles shown in the Current Value Display will change from the set applicable to a previous, different dot shape.

To move to the angle set function

Press: [ENTER] or [▽]

5.4.2.3 Angle Family

150L/IN + SQ 0 B
104 > 156 208

To obtain new angle family, select corresponding angle code.

Enter: **nn**

150L/IN + EL nn A
ANGLE CODE ?

Press: [ENTER]

The new angle set will be shown in the Current Value Display. The Alphanumeric Display will automatically revert to the screen rulings display showing the new angle code and any resulting new rulings.

5.4.3 High Resolution Scanning

CAL 305 enables High Resolution Scanning (also referred to as 'overlap scanning' or 'double overlap scanning'). This facility doubles the horizontal resolution giving 600 lpi on output turret B. Reduced picture elements on film are obtained, useful for line masks or reductions.

Press: [CAL]

Enter: **305**

Press: [ENTER]

ENTER 0/3

High resolution scanning is selected by entering 3 and remains in operation until cancelled by entering 0.

Select **0 or 3**

Press: [ENTER]

Note: When using High Resolution Scanning, laser power must be multiplied by a factor of approximately 0.6 to obtain a comparable calibration with normal scanning.

No warning is given to indicate that High Resolution Scanning is in use. This means that care must be taken to avoid unintentional use of 600 lpi scanning.

5.5 UNSHARP MASKING (USM)

Unsharp Masking is an electronically generated effect which increases the apparent sharpness of the subject. It works by accentuating contrast at an edge or around a point.

Figure 5.4 shows the % dot recorded as the scanner passes over the boundary between a light and dark tone. In the right-hand example USM has been applied. Note how the edge has been enhanced by the introduction of light and dark fringes. Providing excessive USM is not applied the eye will not see the fringes but will see a sharper image.

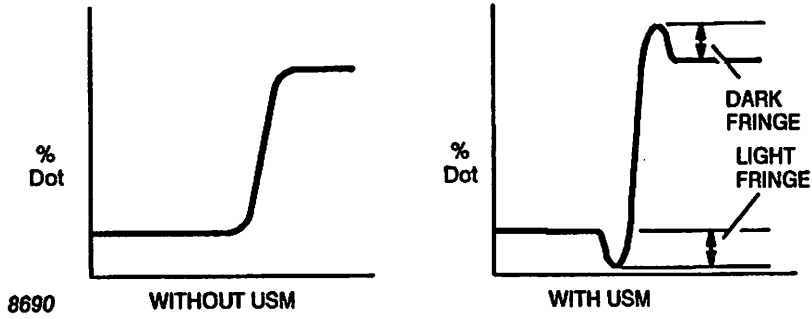


Figure 5.4 USM - % Dot Variations Across an Edge

5.5.1 USM Sharp and USM Smooth

USM Sharp

This is the principal USM setting. It determines the level of fringing to be applied. Its effect is,however, modified by other USM settings.

Enter values in the range 0-9 units, in steps of 1 unit (9 gives maximum USM).

USM Smooth

If low level contrast is enhanced, photographic grain, skin blemishes etc, become exaggerated. It is generally necessary to suppress USM at these contrast levels. Smooth gain is used for this purpose by reducing the Sharp gain at contrast levels below a Threshold setting (set with CAL 508, see Section 5.5.4).

You can enter values in the range 0-9 units, in steps of 1 unit (9 gives maximum suppression).

Sharp/Smooth Operation

Press: USM

Enter: 5

Press: ENTER

Enter: 0

Press: ENTER

Note: The BV default values for fringe channels will be Y=Y, M=M, and C=C.

5.5.2 Black Gain

The Black Gain facility affects the black separation only. An increased factor results in an increase in fringe size and therefore produces a sharper black.

The BV for black gain is set up to 4. Values from 1 to 16 may be entered. Recommended values are listed in Section 10.1.2.

Press: USM

Enter: B

Enter: n

Press: ENTER

5.5.3 Cross-coupling of USM Data

Cross-coupling of data allows the operator to take USM information from one channel and apply it to another.

This information can be advantageous for subjects such as flesh tones, where very soft texture is required but at the same time sharp hair is needed. The Magenta and Yellow may be cross-coupled to the

Cyan signal the flesh tone will be made smooth because the Cyan will be the lowest signal in the Flesh colour, so blemishes or marks on the skin will not be enhanced. However, once the hair is sampled, the density changes will become more dramatic so the hair will appear sharp. Operator action for this activity would be:

Press: USM

Y=? M=? C=? B
USM SHARP = ?

Press: COLOUR

Enter: C and C and C

Y=C M=C C=C B
USM SHARP = ?

1. To enter a new value for sharp,
   Enter: **n** (range 0-9)
   Press: ENTER
   Then similarly, enter a value for smooth.
2. To re-input existing sharp and smooth values,
   Press: ENTER twice

For subjects such as landscapes, the Cyan and Yellow may be cross-coupled to the Magenta signal. The reason for doing this is that the end result should probably look very sharp. The Magenta channel will have the most contrast and as USM is based on % dot changes then this will give maximum USM in all channels.

It should be noted that when cross-coupling is used the Colour Gain data of the channel to which other colours are coupled will be used. This means in our flesh tone example, for instance, if the Yellow channel originally had high Colour Gain (4 to 6), once it is cross-coupled to the Cyan this will no longer apply. The Colour Gain will then be that for the Cyan channel, so instead of a value from 4 to 6, a Colour Gain of 1 will apply.

5.5.4 CAL 508 Functions (USM variables)

The CAL 508 functions are listed in the sequence in which they appear:

- Threshold (range: 0 to 32).
- Fringe Clip (range: 0 to 127).
- Density 1 (range: 0 to 255).
- Density 2 (range: 0 to 255).
- Colour Gain, Yellow (range: 1 to 8).
- Colour Gain, Magenta (range: 1 to 8).
- Colour Gain, Cyan (range: 1 to 8).
- Negative Gain (range: 1 to 8).
- White Attenuation (range: 1 to 8).

To display the functions:

Press:

Enter: **508**

Press:

The first CAL 508 function appears. Recommended values are given in Section 10.1.2. To change the value:

Enter: **nn**

Press:

The display moves on to the next CAL 508 function.

To Step forwards through the sequence, without making a change:

Press: or

To Step backwards through the sequence,

Press:

A keypad entry which is too high gives two bleeps and:

To exit from the sequence it is necessary to Step through each function.

Threshold

Threshold separates those density variations where USM Sharp has full effect, from those where USM Sharp is reduced, neutralized or reversed by USM Smooth.

You can enter values in the range 0-32 units, in Steps of 1 unit. At 32 USM Sharp operates at maximum contrast levels. It is unlikely that you will need to enter values outside of the range 5-10. The BV (default value) is 5. At low Threshold values USM Smooth affects little picture detail. At higher Threshold values USM Smooth affects more picture detail and unsharp picture detail is likely. A very high Threshold value (above 10), together with a high smoothness value, will give a very unsharp separation.

If a set has 'Black Spots' then Threshold and/or Fringe Clip can be used to reduce these. Threshold can also be used for originals which are noisy in what should be smooth areas, or for subjects which are required to look smooth with few harsh edges, such as some watercolour or wash drawing originals.

Figure 5.5 demonstrates the effect of two example Thresholds for a range of USM Smooth values.

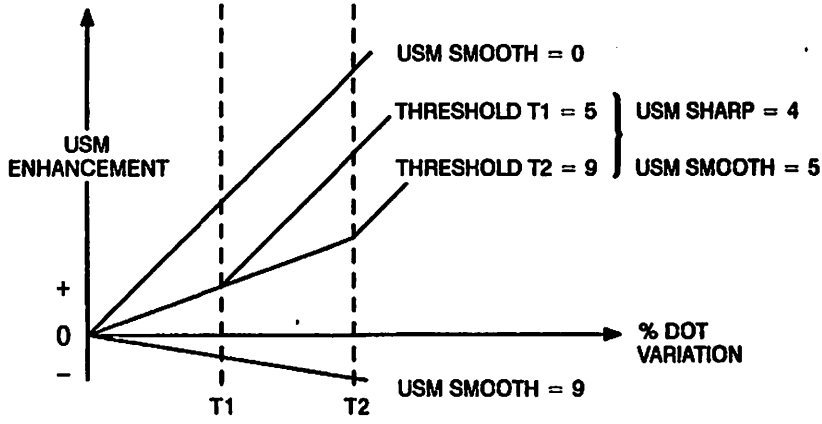


Figure 5.5 USM - Effect of Threshold

Fringe Clip

A high USM gain factor can give rise to heavy and unacceptable fringe characteristics. It is also possible that high frequency noise will occur, appearing as black spots in the fringe. To overcome these problems the Fringe Clip facility has been added. This facility has the effect of limiting the fringe level at high contrast areas whilst maintaining full USM gain in areas of lower contrast. Setting values should be referred to Section 10.1.2.

Fringe Clip is entered as a value which specifies height D in Figure 5.6.

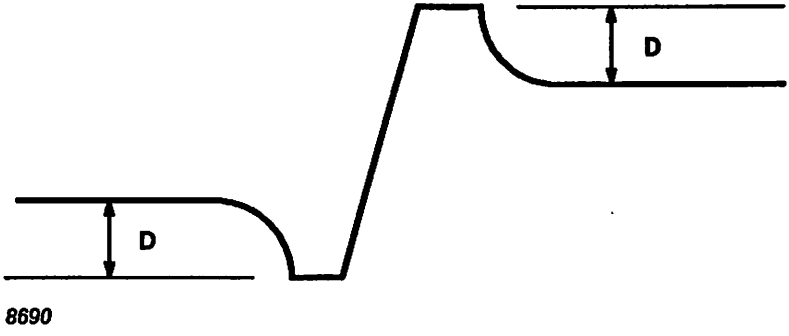


Figure 5.6 Fringe Clip Applied to Light and Dark Fringes

USM Density 1/2

There is little detail in high density areas of an original but usually the dyes are grainy. It is beneficial to reduce USM Sharp in these areas.

At **Density 1** USM Sharp starts to reduce.

At **Density 2** USM Sharp becomes zero.

Assuming a linear tone shape, USM Sharp would reduce as shown in Figure 5.7.

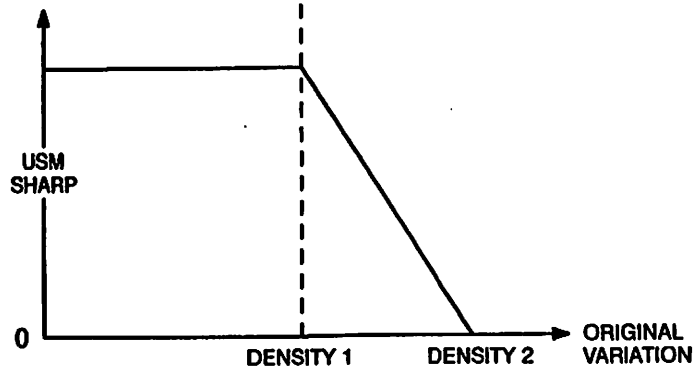


Figure 5.7 USM Roll-Off

Density 1 and Density 2 must each be entered as a whole number value in the range 0 - 255 units. BV (default values) are: Density 1 = 150, Density 2 = 255 units.

Colour Gain

The gain for each of the yellow, magenta and cyan channels can be reduced independently, using modifying values which are entered at Steps 5, 6 and 7 respectively of the CAL 508 sequence.

Enter values from 1 to 8. A value of 1 gives no reduction in gain, 2 gives approximately ½ the gain, 3 gives approximately 1/3 the gain etc. For normal use a value of 4 is recommended for the yellow channel and 1 is recommended for the magenta and cyan channels. These are also the default values.

Negative Gain

The dark fringe can be increased independently of the light fringe, using Neg Gain.

Neg Gain is useful when negative separations are to be scanned and then contacted to positive at a later stage. When the contact copies are made, fill in of white fringe detail (on the positive) occurs. To compensate for this, the dark fringe on the negative can be increased using Neg Gain.

Considerable increase in apparent sharpness can also be achieved by using Neg Gain on positive separations.

Enter values in the range 1-8 units in steps of 1 unit. The BV (default value) is 1. Normal working values should be 2 or 3. The black fringe becomes more visible especially when Neg Gain is greater than 3. The setting chosen is very subjective and only the user will know the type of separation his customers demand.

White Attenuation

Under certain circumstances light fringes need to be suppressed. For example when type overlays a tint panel the fringe can be highly visible. White Attenuation can be used in these cases, to reduce light fringes independently of dark fringes.

Enter values in the range 1-8 units in steps of 1 unit. As the value entered is increased, the white fringe is reduced. At the maximum value there is no white fringe.

It should be noted that if white fringes are totally removed, the overall effect can be an increase in density. The reason for this is that density takes an overall reading which includes the average of the White and Black fringes, so if the White fringe is removed the average increases.

5.6 FORMAT

The scanners can produce separations in five basic formats. These are:

- one-at-a-time (1-up), coded 1@
- two-at-a-time (2-up), coded 2V
- three-at-a-time (3-up), coded 3@
- four-at-a-time (4-up), around the cylinder, coded 4@
- four-at-a-time, (4-up), coded 2H, generally known as Automatic Rescan.

Standard separation formats are shown in Figure 5.8. When two or four separations are exposed at a time they are produced close together, for maximum film economy.

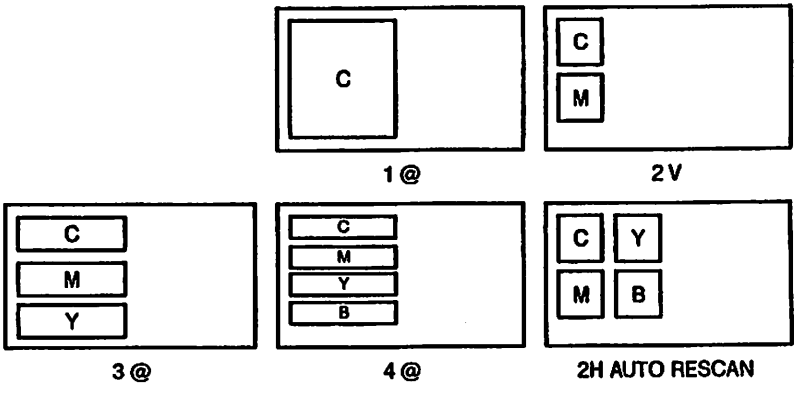


Figure 5.8 Separation Formats

5.6.1 FORMAT 1-up (1@) Procedure

Press: FORM

Enter: 1

The last-used format appears on the top line e.g. **2V**.

The display reverts to the monitor mode, showing **1@** on the top line.

FRMT 1 means Format 1.

To change the separation/screen angle combinations,

Press: FORM

```
1@ 1.00 50 150
FRMT 1@ C1M2Y3B4
```

Press: POSN

```
1@ 1.00 50 150
REPOS'N ? Y/N
```

Respond: ↕ YES

```
1@ 1.00 50 150
LAYOUT = C?M?Y?B?
```

If the required separation/screen angle combinations are **C4 M3 Y2 B1**,

Enter: **432**

```
1@ 1.00 50 150
LAYOUT = C4M3Y2B1
```

This means that you will use the Black screen angle (4) for the Cyan separation. You will use the Yellow screen angle (3) for the Magenta separation, and so on. The required colour to be exposed must be selected for each exposure, using the colour channel select buttons. e.g. 1st exposure, select **C**, hence the Cyan separation will be exposed with the Black screen angle, and so on. Other separation/screen angle combinations and orders of exposure are possible.

5.6.2 FORMAT 2-up (2V) Procedure

Press: FORM

Enter: **2**

```
1@ 1.00 50 150
FRMT 2@ C1M2Y3B4
```

The last-used format appears on the top line, e.g. **1@**.

Respond: ↕ YES or ENTER

```
1@ 1.00 50 150
FRMT 2V C1M2Y3B4
```

The display quickly reverts to the monitor mode, showing **2V** on the top line.

If required, change the separation/screen angle combinations as for 2-up.

If it is required to expose a pair of separations with the 1/2 screen angles first, Press **[C]** or **[M]**. Alternatively, if the 3/4 screen angles are to be used first, Press **[Y]** or **[B]**.

5.6.3 FORMAT 3-up (3@) Procedure

The 3@ procedure is as follows:

Press: FORM

Enter: **3**

2V 1.00 50 150
FRMT 3@ C1M2Y3B4

The display initially indicates previous format, e.g. **2V**, in top-left corner. The display quickly reverts to the monitor mode, showing **3@** on the top line.

Angle swop can be made in the usual way, e.g. to **C3 M1 Y2**, thus:

Press: FORM

Press: POSN

3@ 1.00 50 150
REPOS'N Y/N ?

Respond: ↕ YES

3@ 1.00 50 150
LAYOUT = C?M?Y?

Enter: **312**

3@ 1.00 50 150
FRMT 3@ C3M1Y2

5.6.4 FORMAT (4-up) Procedure

There are two 4-up options.

- 4@, around the cylinder - vertically
- 2H, using auto rescan - horizontally.

5.6.4.1 Around the Cylinder

Press: FORM

Enter: **4**

2H 1.00 50 150
FRMT 4@ C1M2Y3B4

The last used format appears on the top line, e.g. **2H**.

The display quickly reverts to the monitor mode, showing 4 @ on the top line. If required, change the separation/screen angle combinations as for 1-up. However, there is no need to press any colour select button before exposure, since all colours are exposed in the same scan.

To interrogate the scanner regarding format, Press **[FORMAT]**. If the format is 4@, the display will show:

Press **[FORMAT]** again, to leave the format unchanged and to return to monitor mode.

5.6.4.2 Auto Rescan

Press:

Enter: **2**

Press:

The last-used format initially appears on the top line, e.g. **4@**. The display quickly reverts to the monitor mode, showing **2H** on the top line.

5.6.5 Film-Save

Electronic dot generation allows separations to be closely spaced on the output film. Separations are now butted-up vertically, thus small enlargements can be exposed on one half of the film, leaving the remaining half available for further exposures. This facility is particularly useful for small exposures on a Maxim exposure unit and considerable savings can be made. To maximize the effectiveness of the Film-Save capability, the final size of the separations must be considered when deciding the order of exposure.

Note: 2H format cannot be set when exposing onto the lower half of the film.

5.6.5.1 Procedure

To enter the Film-Save mode and to select the upper half of the output film,

Press:

Use:

The display then reverts to the monitor mode,

The U on the top line indicates, that the upper half of the film will be exposed.

To change the format whilst retaining the upper half restriction.

Press:

Enter: 2 (if 2 up required)

Press:

Expose the first set of separations.

Exposure continues across the width of the film until the Alphanumeric Display gives the message,

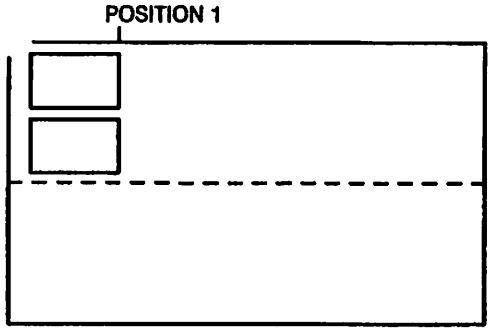
This message means that there is insufficient film available to accept the next set of separations.

To continue exposure the lower half of the film has to be selected,

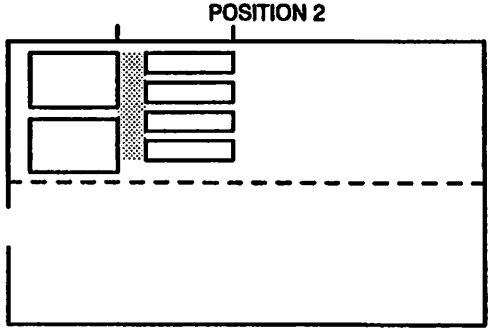
Press:

Press:

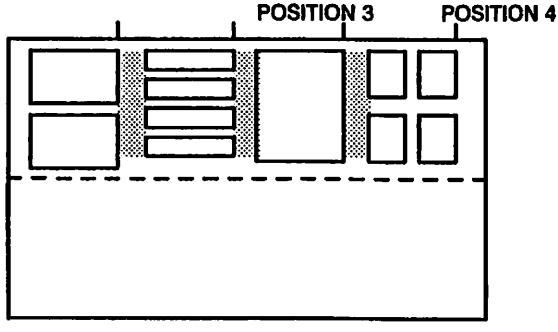
Reverting to the monitor mode with L displayed as part of the format indicator.



THE SCANNER AUTOMATICALLY NOTES THE FINISH POSITION OF THE FIRST SET OF EXPOSURES.



THE SECOND SET OF SEPARATIONS CAN THEN BE EXPOSED WITH THE SCANNER AGAIN NOTING THE FINISH POSITION.



8690

Figure 5.9 Filmsave Expose-sequence

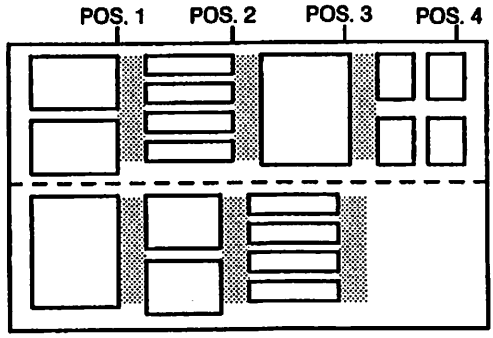


Figure 5.9 Continued

The first set of separations on the lower half of the output film is now exposed. Exposure can be continued on the lower half in the same manner as for the top half.

Continue to expose across the lower half of the output film or until the Alphanumeric Display gives the message,

U/L WIDTH ERROR

This message means that there is insufficient film available between the expose head position and the last position counter.

To cancel the Film-Save mode,

Press: FORM

Press: —

5.6.6 Recommended Film Sizes

The recommended, maximum film sizes are:

- 658 x 610 mm standard format.
- 658 x 711 mm full format (E). See Figure 4.2(a-e).
- 1067 x 845 mm full format (M). See Figure 4.2(f-k).

Dimensions may be up to 2 mm less than those quoted above.

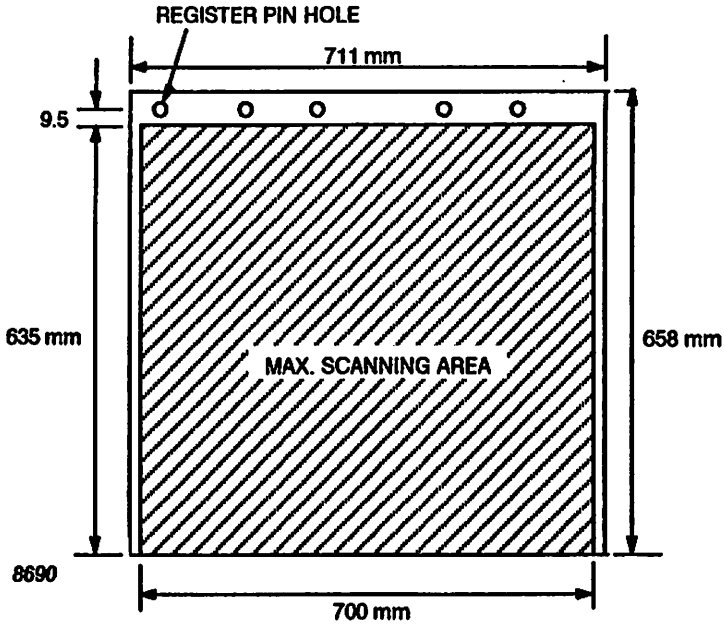


Figure 5.10(a) Maximum Scanning Area (1@, full format - 6X6E)

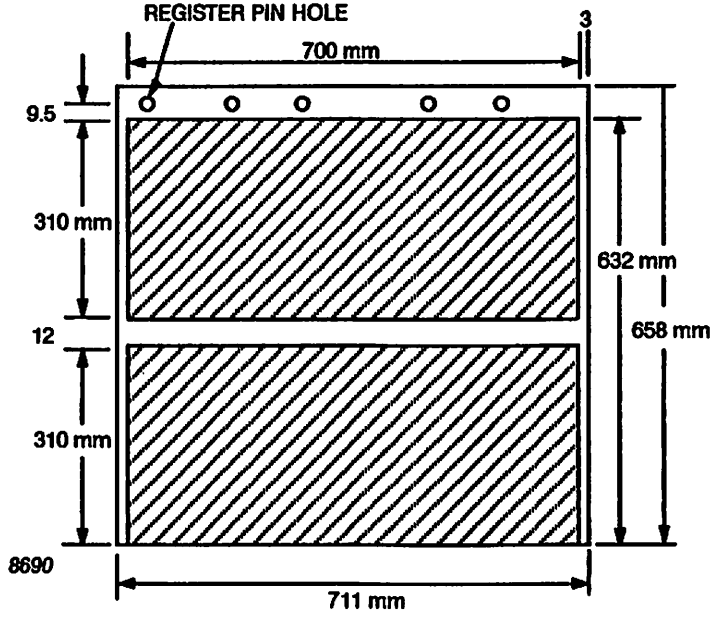


Figure 5.10(b) Maximum Scanning Area (2V, full format - 6X6E)

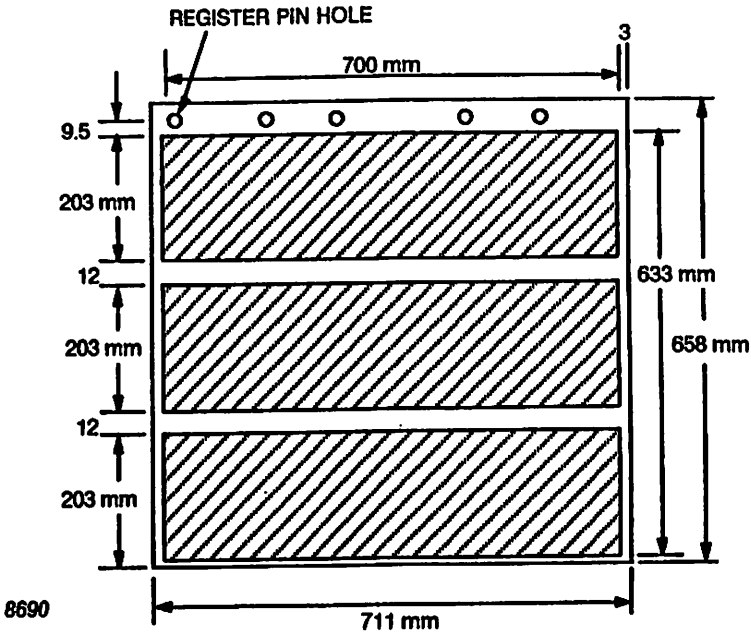


Figure 5.10(c) Maximum Scanning Area (3@, full format - 6X6E)

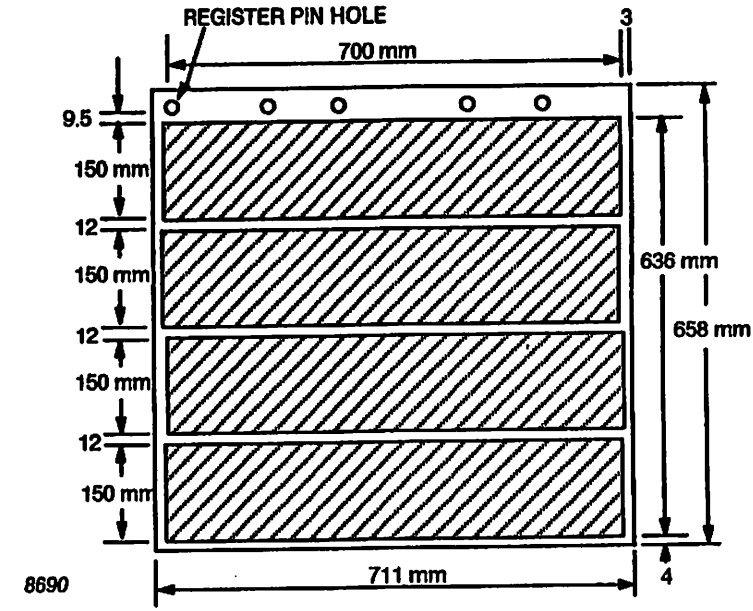


Figure 5.10(d) Maximum Scanning Area (4@, full format - 6X6E)

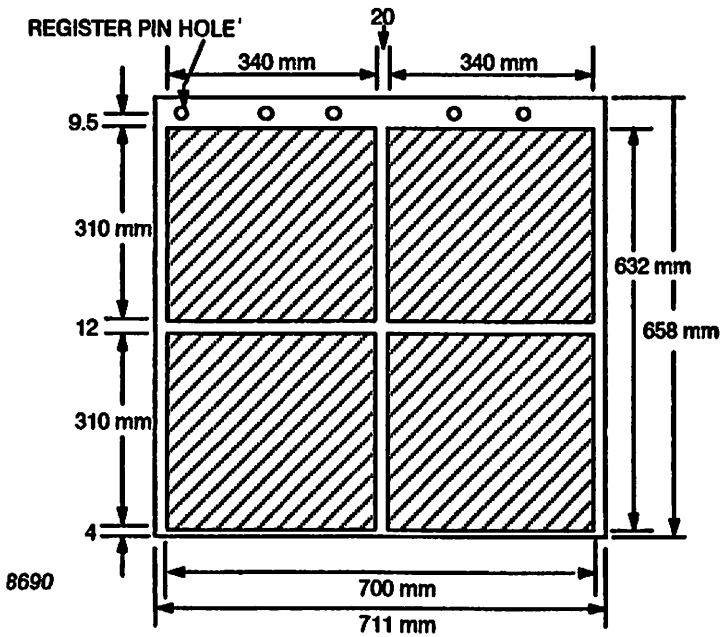


Figure 5.10(e) Maximum Scanning Area (Auto Rescan {2H}, full format - 6X6E)

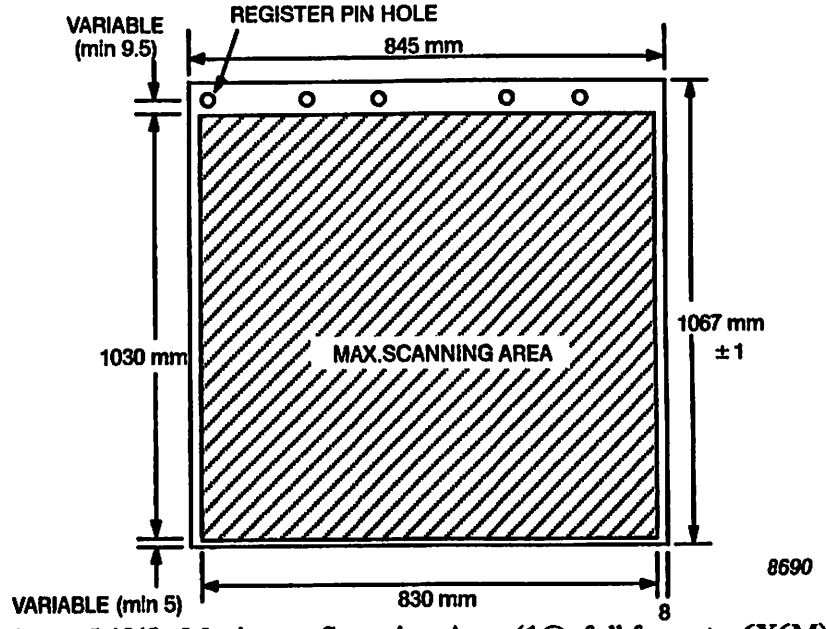


Figure 5.10(f) Maximum Scanning Area (1@, full format - 6X6M)

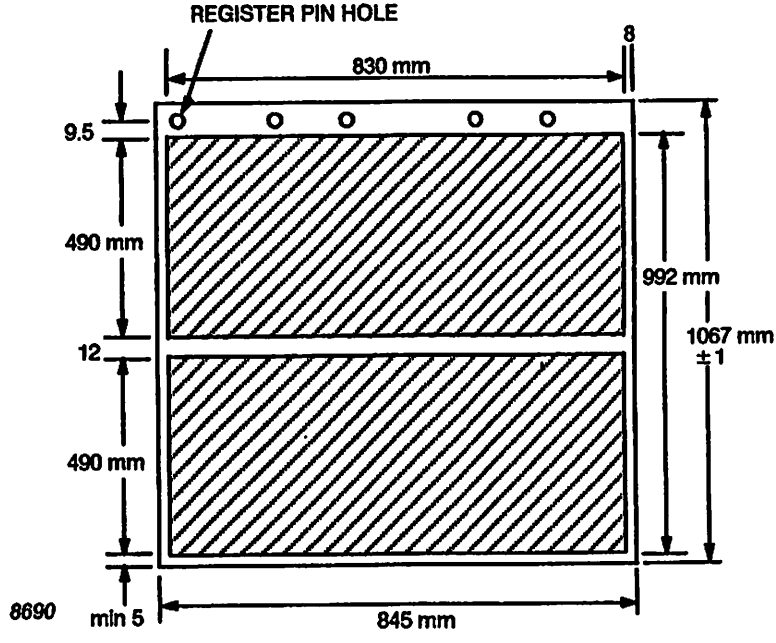


Figure 5.10(g) Maximum Scanning Area (2V, full format - 6X6M)

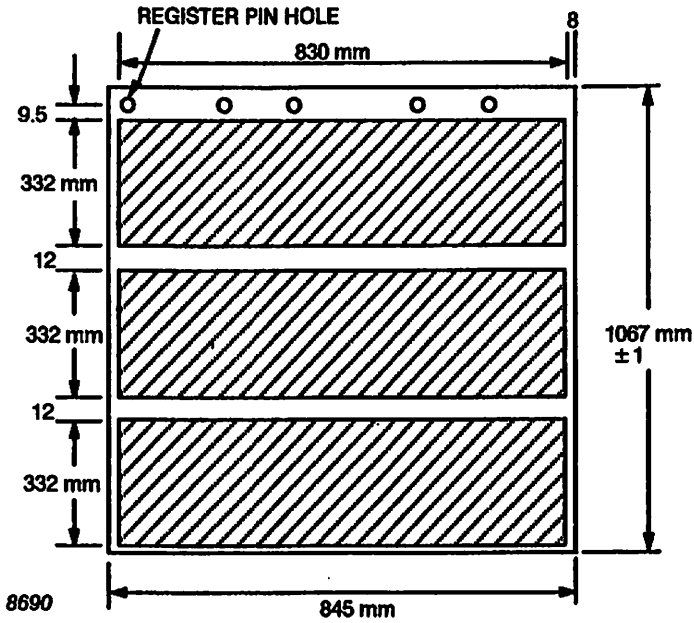


Figure 5.10(h) Maximum Scanning Area (3@, full format - 6X6M)

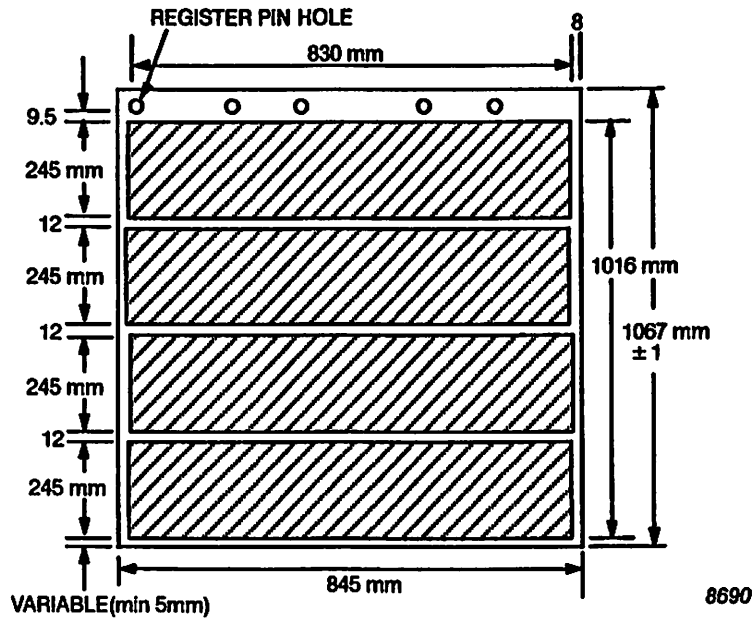


Figure 5.10(j) Maximum Scanning Area (4@, full format - 6X6M)

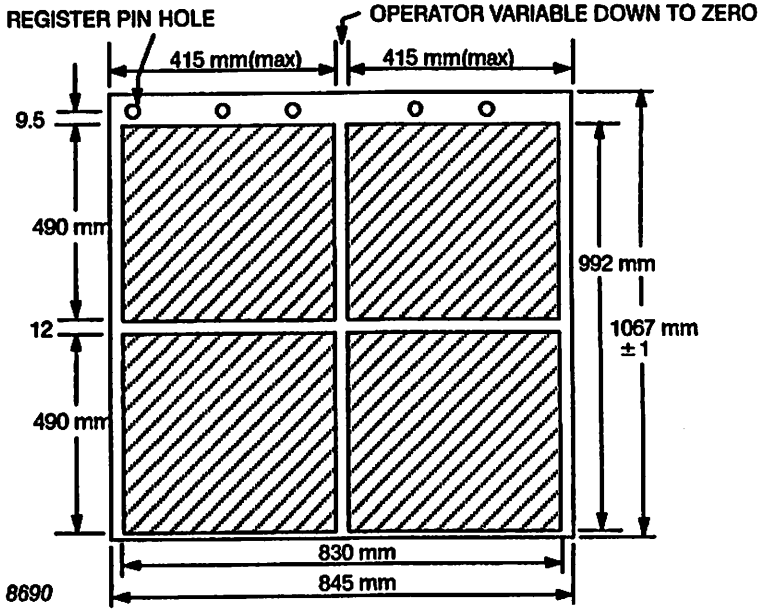


Figure 5.10(k) Maximum Scanning Area (Auto Rescan {2H}, full format - 6X6M)

5.7 AUTOFORMAT

Once an enlargement and final film size are known, the Autoformat facility can be used to set the most suitable format for a current job automatically. All format sizes available to a particular scanner type are automatically selectable except format 3 (3@).

The Autoformat facility can be used with Step and Repeat, and Film Save.

An automatically selected format will be indicated on the Alphanumeric Display after the second co-ordinate of the original film (or transparency) size has been entered. Automatically selected formats can be overwritten manually without the need to exit, or can be cancelled with a return being made to standard monitor mode.

To select the Autoformat function,

Press:	CAL	
Enter:	888	
Press:	ENTER	AUTOFORMAT ON CHANGE Y/N ?
Press:	↕ YES	to change the selection
Press:	↔ NO	to keep the current selection and leave the display

5.8 . EXPOSE CARRIAGE FUNCTIONS

5.8.1 Expose Carriage Traverse

Slow-traverse Selection

Press and Hold:

Fast-traverse Selection

Press and Hold:

Then Press and Hold:

[FAST] may now be released and the carriage will continue to fast-traverse while either left or right traverse button remains held.

To change the traverse speed

It is necessary first to halt the existing traverse mode, and then to re-select the other traverse mode, as detailed. The carriage ceases traversing on release of the left or right traverse button.

5.8.2 Expose Carriage Re-set

To expose sequences where **[EXPOSE HOLD]** has been switched off (i.e. by pressing **[STOP]**), press **[FAST]** and **[CAL]** together. The expose carriage will be driven to datum, ready for the next scan.

5.8.3 EXPOSE HOLD and CAL 34

All Formats

When **[EXPOSE HOLD]** is pressed, it stops the expose carriage from resetting to the start position for the next exposure. This allows economical use of output film. Whenever you want to make another exposure on the same film, press **[EXPOSE HOLD]**. The expose head will move across the cylinder for a short distance. This is to prevent one exposure starting where another one has finished.

The distance that the carriage moves can be set by the operator, directly in millimetres up to 255 mm using CAL 34. If no value is chosen by the operator, the scanner will use a value of 10 mm for the carriage movement.

Change the screen angle if necessary, then press **[EXPOSE]**. The analyse head rescans the original as the expose head produces the next separation.

Use **[EXPOSE HOLD]** to expose calibrations alongside separations.

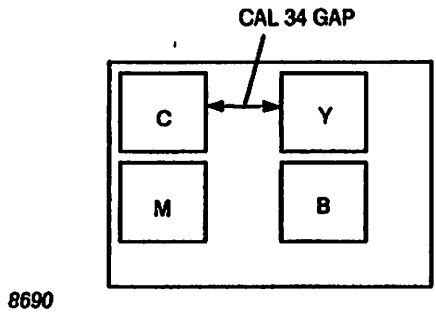


Figure 5.11 CAL 34 Gap

2H Formats

When a 2H format has been selected, the gap between the left-hand and right-hand separations is set by default to 10 mm and is only defined by an operator if it has to be changed to a different value. By selection of **[CAL] 34** the gap can be changed by the operator to any value up to 255 mm providing the separations remain within the film size.

5.8.4 CAL 35

CAL 35 can be used to define the centre of the film. This function is not normally required as the film centre is defined by default for use on standard size film. However, if non-standard film sizes are used, then select **[CAL] 35** to define the film centre.

5.8.5 Expose Head Position

CAL 43 will give the expose head position on the analyse Alphanumeric Display.

5.9 AUTOBALANCE

5.9.1 Function

Autobalance is similar to zeroing a densitometer. In autobalance mode the clear cylinder represents minimum density and no light to the photomultipliers represents maximum density.

5.9.2 Operation

Autobalance proceeds automatically once it has been started. Set the analyse head to view clear cylinder. Whenever you autobalance, the correct cylinder, aperture, lens and focus etc. must be selected for the work to be done. Changes of cylinder, aperture, lens etc. will necessitate a new autobalance.

5.9.3 Transmission Autobalance Sequence

1. Set transmission mode.
2. Fit the correct centre optics lens S or L.
3. Set the analyse lens to its correct position.
4. Set the focus according to the job to be scanned.
5. Clean the area of cylinder to be used.
6. Aim the analyse head at the clean area.
7. Set the correct aperture and filter.
8. Check that the scan spot is central using CAL 40. (See Section 4.4.)
9. Press:

Respond:

5.9.4 Reflection Copy Autobalance Sequence

1. Set reflection mode.
2. Fit centre optic blanking plug.

3. Set the analyse lens position for the large cylinder.
4. Set the focus according to the job to be scanned.
5. Place the white autobalance patch from the Repropack on the cylinder. Aim the analyse head at the patch.
6. Set the correct aperture.
7. Press:

AUTOBALANCE Y/N ?

Respond:

5.9.5 Autobalance in Action

During Autobalance the numbers in the Current Value Display fluctuate rapidly between high and low values. The Alphanumeric Display will fluctuate between:

AUTOBALANCE WHITE and AUTOBALANCE BLACK

The Alphanumeric Display will then show (transmission only):

"B" PATCH TRACK

A correct autobalance will be indicated by one bleep and the Alphanumeric Display will revert to the monitor mode, indicating that normal operation may continue. An incorrect autobalance will be indicated by three bleeps. The Alphanumeric Display will show a message like this:

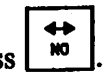
TRY AGAIN YES OR NO
ERR W:C B:Y

W : C = White autobalance error in cyan channel.

B : Y = Black autobalance error in yellow channel.

You now have two options. To autobalance again,

Press:

To continue to operate, press  . The scanner will revert to the normal monitor mode but the error will remain.

If an error W or B results after a second attempt at autobalance, proceed down this list until the problem is found:

1. Check that the correct analyse aperture is selected.
2. Check that the correct analyse filter is selected.
3. Check that the analyse lens is in the correct position for large or small cylinder.
4. Check that the analyse spot is centred (CAL 40).
5. Check that the analyse focus is sharp on a typical sample of copy (this is to ensure that the analyse focus is not drastically out).
6. Check that the correct centre optics lens is selected.
7. Check that the transmission/reflection mode is correct.
8. a) Check that the area of cylinder viewed (transmission) is clean.
   b) Check that the white autobalance patch (reflection) is clean.
9. Clean centre optics and analyse lenses.
10. Check that the maximum light output is achieved by use of the lamphouse controls.

Assuming that none of the above checks have identified a problem, there are two other reasons for failure to autobalance.

a) Insufficient light is reaching the analyse head, giving an ERROR WHITE autobalance.

b) An electronic fault may be causing the lamp or other parts of the scanner to malfunction, affecting both WHITE and BLACK autobalance.

   i) WHITE ERROR

   Attempt autobalance several times more. If unsuccessful, after going through all the checks, fit a new xenon lamp.

   ii) WHITE AND BLACK ERROR

   There maybe an electronic fault. Call the Service Engineer.

5.9.6 Store and Recall of B Patch Targets

This facility enables B patch targets, which are the means of matching scanners to scanners/densitometers, to be recalled and stored by an operator.

Recall B Patch Targets

When no change is required to the previously entered values, including directly after power-up or reset, to recall these values for use by software, use the Recall B-Patch Values function, CAL 152, as follows:

Press: CAL

Enter: 152

Press: ENTER

Press: ↕ YES

Previously entered values are recalled for future use by software.

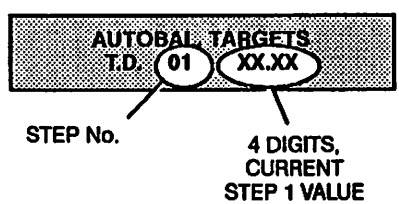
Store B Patch Targets

When different B patch values are to be used, these should be stored by means of the Store B-patch Values function, CAL 502, as follows:

Press: CAL

Enter: 502

Press: ENTER



Note: Only Steps 7, 8 and 9 are for B patch values.

All 24 function steps must be stepped through, whether inputting a new value or not.

If no change to the Step value (displayed bottom right) is required, Step straight through by pressing **[ENTER]**. If a new value is required (e.g. in B-patch Steps 7, 8 and 9) select required 4-digit value and Press **[ENTER]**. As soon as a new value is selected it will appear at bottom right of the display. On pressing **[ENTER]** the next step number (bottom centre) appears with its corresponding current value (bottom right).

Continue as above, until all 24 steps have been entered. Then, again, Press **[ENTER]** to return to standard monitor mode.

Entering **[CAL] 502** directly after a power-up or reset will automatically overwrite all previously entered function values with basic values. If different B-patch values are required, then it is necessary to carry out the sequence:

1. Recall B-patch Targets with **[CAL] 152.**
2. Enter **[CAL] 502** and Step through sequence to confirm the present values.

5.10 CUSTOMER VALUES AND JOB VALUES

Each scanner is supplied with a standard program incorporating Basic Values (BVs), which are typical values used for the appropriate printing process. It is difficult to make a standard that suits everybody. Thus we have given you the facility to store your customer's work.

The following functions are available: (The Alphanumeric Display abbreviations are given in brackets.)

Grey Balance	(GBAL)	Cast 1	(CST1)
Colour Correction.	(CC)	Cast 2	(CST2)
Output Calibration	(OCAL)	Limits	(LMTS)
PCR	(PCR)	Black Printer	(BLAK)
Catchlight	(CLT)	Breakpoints	(BRKP)
Luminosity	(LUM)	EDG data	(EDG)
Neutral Tone	(NTON)	USM data	(USM)
Permanent Tone Boosts	(PTBS)	Pastel Boost	(PSCR)

All are contained in each CV block. Three CV blocks are available. Thus you can store three sets of values for each function (e.g. three CC sets, three GBAL sets, etc).

The operator can call up a complete CV or BV block for use in a job. Values used for a job are called Job Values (JVs). Alternatively, the operator can take values of individual functions from different CV blocks, as well as from the BV block, for use in the JV block.

The BV block is coded CV0. The CV blocks are coded CV1, CV2, CV3 e.g.

Colour correction values taken from CV1 are coded CC1

Catchlight values taken from CV3 are coded CL3

Grey balance values taken from CV0 (BV) are coded GB0 etc..

When values from BV and CV have been transferred into JV, they can be edited. The edited values can then be stored in CVs if required, overwriting the values previously stored. (Tone edits should be stored as Permanent Tone Boosts using CAL 10.

The Alphanumeric Display always shows job values, but does not indicate whether they are edited or not. Therefore edited values should be noted when generated, for future reference.

Note: That you **cannot store** Job Values in the BV block (CV0).

You can store new values of all of CV functions, by using the appropriate CAL procedure. It is possible to store an individual function in most cases, or alternatively store all functions as a block, in any one of the three available CV blocks. The recall procedure works in a similar fashion. It can be done either as a complete CV block or as an individual function selected from CV0, CV1, CV2 or CV3 (e.g. CC from CV2, GB from CV1, TONE from CV3, etc.). The Recall number/Store number relationship for each function is 1XY/2XY.

5.10.1 Storage Procedure

To store a function,

Press: [CAL]

Enter: **nnn**

Press: [ENTER]

```
4@ 1.00 50 150
STORE ..... BLOCK ?
```

The CAL numbers for the various set-up functions that can be stored in a CV are:

2 1 3	for grey balance
2 1 2	for colour correction
2 1 4	for PCR
2 0 1	for output calibration
2 1 7	for catchlight
2 5 3	for luminosity
2 1 0	for permanent tone boosts
2 1 6	for CAST 1
2 1 5	for CAST 2
2 1 8	for limits
2 1 1	for black printer
2 2 0	for breakpoint
2 1 9	for EDG data
2 5 8	for USM data
2 6 3	for pastel boost
2 5 6	for vignettes
2 3 0	for full CV block

Select the CV block required (i.e. 1, 2 or 3),

Press: [ENTER]

```
4@ 1.00 50 150
OVERWRITE CV Y/N ?
```

Respond: [YES]

This will store the JV data in the appropriate CV block.

Note: An individual function or the full set can be stored. Any entry using CAL 230 will overwrite **all** CV functions in the CV block chosen for storage.

The diagram below shows the scanning data storage areas and the flow paths between them.

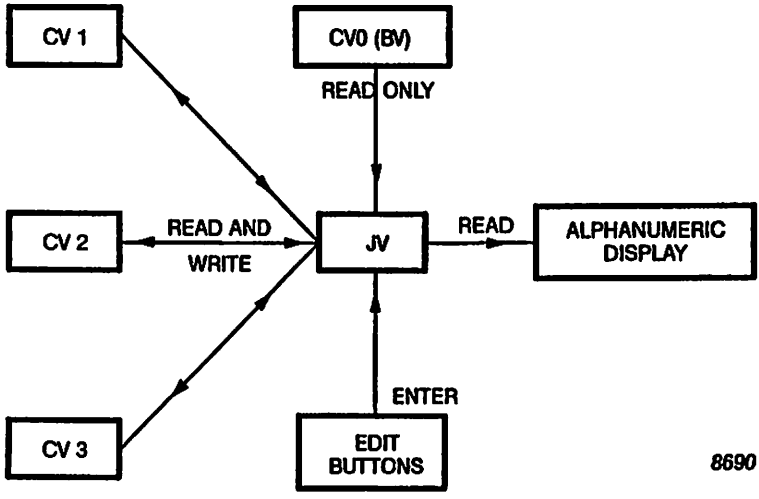


Figure 5.12 Data Storage and Flow Paths

5.10.2 Recall Procedure

To recall a function.

Press: [CAL]

Enter: **nnn**

Press: [ENTER]

4@ 1.00 50 150 RECL ..... BLOCK ?

The CAL numbers for the various set-up function that can be recalled from a CV are:

1 1 3	for grey balance
1 1 2	for colour correction
1 0 1	for output calibration
1 1 4	for PCR
1 1 7	for catchlight
1 5 3	for luminosity
1 1 0	for permanent tone boosts
1 1 6	for CAST 1
1 1 5	for CAST 2
1 1 8	for limits
1 1 1	for black printer
1 2 0	for breakpoint
1 1 9	for EDG data
1 5 8	for USM data
1 6 3	for pastel boost
1 5 6	for vignettes
1 3 0	for full CV block

Enter the number of the CV block you require (i.e. 0, 1, 2 or 3).

To recall the data from BV/CV to JV, press ENTER

Note: An individual function or the full set can be recalled

Any recall using CAL 130 will recall **all** functions from the chosen CV block.

5.10.3 Set-Up Function Values

There are three CAL numbers which provide information about the Job Values used in scanner set-up.

CAL 30

When this CAL number is entered, the Alphanumeric Display will list the last-used BV or CV blocks for each function, in a single display.

For example: 02113000 11233322 means:

FUNCTION	CV USED IN JV	
Grey Balance	0	(BV)
Colour Correction	2	(CV2)
Output Calibration	1	(CV1)
Polychromatic Colour Removal	1	(CV1)
Catchlight	3	(CV3)
Luminosity	0	(BV)
Neutral Tone	0	(BV)
Permanent Tone Boosts	0	(BV)
Cast 1	1	(CV1)
Cast 2	1	(CV1)
Limits	2	(CV2)
Black Printer	3	(CV3)
Breakpoints	3	(CV3)
EDG Data	3	(CV3)
USM Data	2	(CV2)
Pastel Boost	2	(CV2)

To return to the monitor mode, Press: ENTER

CAL 31

When this CAL number is entered, the Alphanumeric Display will Step through the scanner set-up functions displayed using CAL 30, plus Vignettes. The BV or CV block in use (i.e. in JV) is indicated for each function in turn. A different BV/CV block can be entered in each case, if required. For example:

Press: CAL

Enter: 31 CURRENT GBAL CV IS BLOCK # 0

(BV is in use)

To confirm and step to the next function,

Press: ENTER CURRENT C.C CV IS BLOCK # 2

(CV2 is in use)

To change the block in use, Select: 1, 2 or 3.

When a number is pressed on the keypad, the display will change. When **[ENTER]** is pressed, the selected CV is transferred into JV, overwriting the previous CV in use. If you do not wish to Step through all functions, press **[STOP]**. The scanner will bleep once and return to the monitor mode.

This sequence does not indicate whether the CVs recalled into JV have been edited or not.

CAL 32

When this CAL number is entered, the Alphanumeric Display will indicate those functions which have **edited** values, i.e. non-BV or non-CV values.

The display steps automatically through the functions showing each for about a second. Finally, the scanner bleeps once and returns to the monitor mode. The functions which might appear in this sequence are those displayed with CAL 30, plus:

Vignettes	(VIGN)
Matrix Table	(MTBL)
Tone	(TONE)
Autobalance Targets	(A.B)

If none of the functions have been edited in the JV block, the scanner will bleep once and immediately return to the monitor mode.

5.10.4 Reduction of Loading-Time

The Dual Speed System Controller starts loading the 3D Look-up Table (LUT) immediately after the scanner has been initialized and also after any colour edits have been made. The loading of the 3D LUT is invisible to the operator, who can still be setting up the scanner whilst it is being done.

Features, used in colour editing, which, **do affect** the loading of the 3D LUT are:

PCR	Cast 1 and 2
Pastel corrections	Auto shadow neutralization
Colour corrections	Neutral selective tone boost
Grey balance	Black printer
Maximum print density	

The scanner spends the majority of the time, from when **[EXPOSE]** (analyse keyboard) is pressed to when it actually starts scanning, in loading the 3D LUT. The operator, through the Dual Speed System Controller, can reduce job set-up time by entering any of the colour edits, listed in the previous paragraph, towards the beginning of the job set-up sequence followed by any of the features that do not affect the loading of the 3D LUT. Features **not affecting** the loading of the 3D LUT are:

Catchlight	Vignettes
Dot shape	Enlargements
Screen angles	Formats
Limits	Negative
Scan rate	Beam overlap
Luminosity curves	Autobalance
HL, MT, SH tone boost	Half speed
USM (CAL 508)	Screen trims

For a new scan where no colour editing is required, the 3D LUTs are not re-loaded. As a result CAL 36 (no new Set-up) **is redundant.**

Suggested job set-up sequence for straight scans

A suggested sequence for optimizing the reduction of job set-up time is:

1. Power-up (see Chapter 4).
2. Autobalance. It should be noted that Autobalance can be achieved without entering View mode.
3. EW and EB.
4. Colour edits.
5. Features **not affecting** loading of the 3D LUT with the exception of Autobalance.
6. Load film.
7. Expose.

5.10.5 Clearing Job Values

CAL 900 is used to reset the scanner without turning off the power. It is of use if the scanner memory has become corrupted. Enter **[CAL] 900** to initiate the reset sequence. The previous JVs will be cleared.

New JVs can now be loaded from the CV or BV blocks and edited as required.

5.10.6 Clearing Customer Values and Job Values.

CAL 902 has a similar function to CAL 900 but in addition it clears the data from CV blocks. Enter **[CAL] 902** to initiate the reset sequence. The analyse display changes to:

To clear CVs and JVs, press **[YES]**. To abort the sequence press **[NO]**. If **[YES]** is pressed the display changes to:

Press **[YES]** to proceed or **[NO]** to abort.

When the sequence has been completed the BVs can be loaded into the CV blocks and each CV block can be edited as required.

5.11 LUMINOSITY CURVES

Luminosity values are calculated for three types of originals:

1. originals with a dark surround (35 mm etc.)
2. originals with a light surround (mainly reflection copy)
3. large transmission originals.

Average luminosity values have been calculated for the Basic Value program. These values, or other values at the customer's discretion, can be changed using CAL 505 and stored or recalled using CAL 253 or 153 respectively.

5.12 PRINT DENSITY

The PD data now provides a tone shape which takes into consideration the dot gain. Any additional tone edits needed to match the customer's requirements are made in the normal way on the scanner front panel edit controls. Average PD values have been calculated for the Basic Value program. Other values can be loaded by CAL 504, and stored or recalled by CAL 213 or 113 respectively.

5.13 GREY BALANCE (GB)

5.13.1 What Is Grey Balance?

A basic requirement of colour printing is to reproduce greys using C, M and Y inks. Three colour overprints of equal dot% values will produce brown, not grey (additivity failure). To reproduce grey the values for the scale have to be properly 'unbalanced' or 'grey balanced'. The extent of imbalance needed depends on the inks, press and paper used. This problem may not occur in gravure printing as the inks in use can be balanced.

5.13.2 Method

In order to simplify the method of determining Grey Balance and establish a repeatable procedure, which can also be used as a diagnostic reference, a test forme method of grey balance set-up is essential.

The test forme contains two distinct parts. One part consists of 10 blocks, each having a constant cyan dot (or density) with varying magenta and yellow. This is the part of the test forme for grey balance assessment.

Each block is divided into 25 separate areas by a grid printed in black ink. The purpose of this is to act as a neutral reference and is designed to have a density approximately the same as the neutral area formed by the three colour overprint. If the two are identical the tertiary grey and that produced by the black ink will be virtually indistinguishable from a reasonable viewing distance. This will then produce a simple reference as to which area is a tertiary neutral. However, this result is very dependent upon printing conditions. Nevertheless it still provides a very useful reference.

The grey balance is determined by choosing an area within each block which produces the closest to a visual neutral. It should be assessed under standard viewing conditions. Generally, individual observers disagree on the precise area because by its nature the proof has an array of areas all very close to neutral. However, the disagreement is rarely significant. If more than one observer makes the assessment an 'average' of their results may be used.

5.13.3 Grey Balance Set-up Procedure

The set-up procedure for Grey Balance is performed in the following sequence:

1. Examine the proof under 5000°K lighting, and from each of the ten blocks select and note a square which is most neutral in appearance (see Grey Balance test forme, Figure 5.13).
2. For the ten squares thus selected, record the dot% values of the cyan, yellow and magenta. A properly calibrated densitometer must be used to measure the exact values from the originally supplied separations, since the values listed in this guide are approximate.
3. Construct the cyan plot for the graph, as shown, using the 16 dot% cyan BVs found in CAL 13.
4. To account for the discrepancies on film, mark the actual ten cyan dot % values of the neutral patches recorded in (2) along the cyan BV curve (see Figure 5.14).
5. Now plot the relative yellow and magenta percentages on film against the ten cyan points.

   Note: To ignore this consideration will result in the subsequent yellow and magenta derived values for CAL 13 being out of balance with the fixed cyan values.
6. Draw a smooth curve through each magenta plot and another through each of the yellow plots.
7. From the yellow and magenta curves thus produced, a dot% value for each step can then be derived and entered in CAL 13.

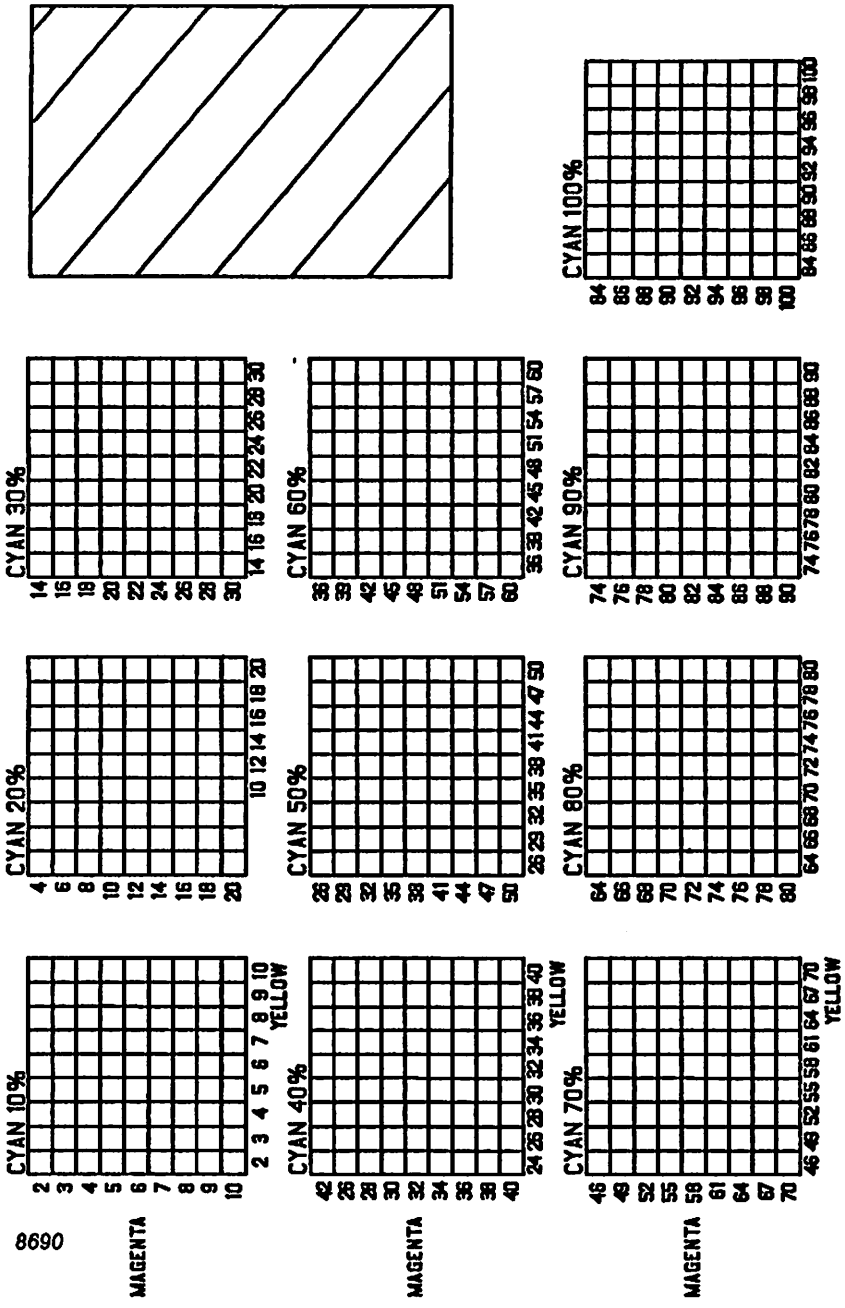


Figure 5.13 Grey Balance Test Forme

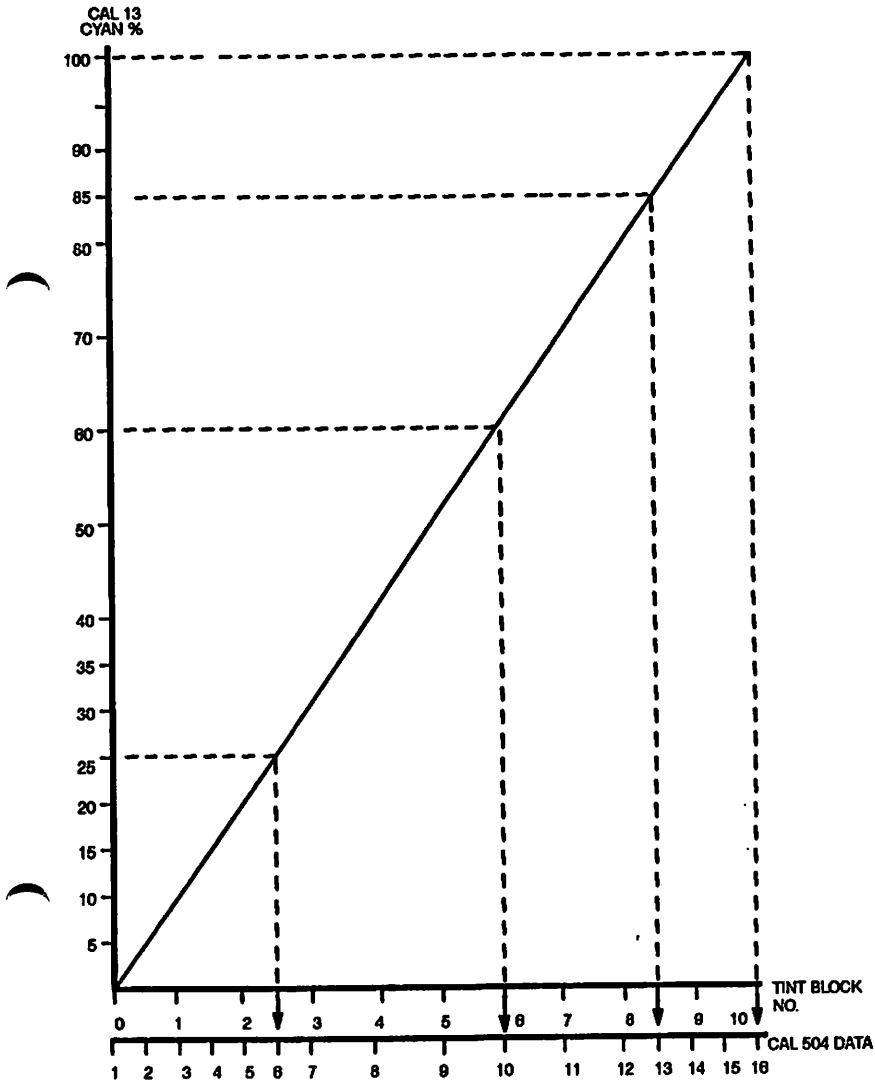


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Figure 5.14 Grey Balance Graph for Print Density

5.14 BLACK PRINTER

The Black Printer functionality has been extended to allow increased editorial flexibility and, also, the calculation for the Black gradation curve is no longer based solely on information from the Cyan tone curve.

Nevertheless, the existing option to Enter White and Enter Black in the Black Channel is still a very acceptable method of setting the Black Printer for individual jobs.

The controls available allowing changes to be made to the Black Printer are:

Black Tone Boost - CAL 11 (Offset and Slope)

Black Grey Balance - CAL 514 (Black Curve Calculation)

These controls are localized in their operation and should be used in a logical order, as indicated in this sub-section.

Reference should be made to Figure 5.15, which provides the curves from which the logical step-by-step use of the black tone controls can be determined. Black Curve, Black Grey Balance and Black Tone controls are used in sequence, as described.

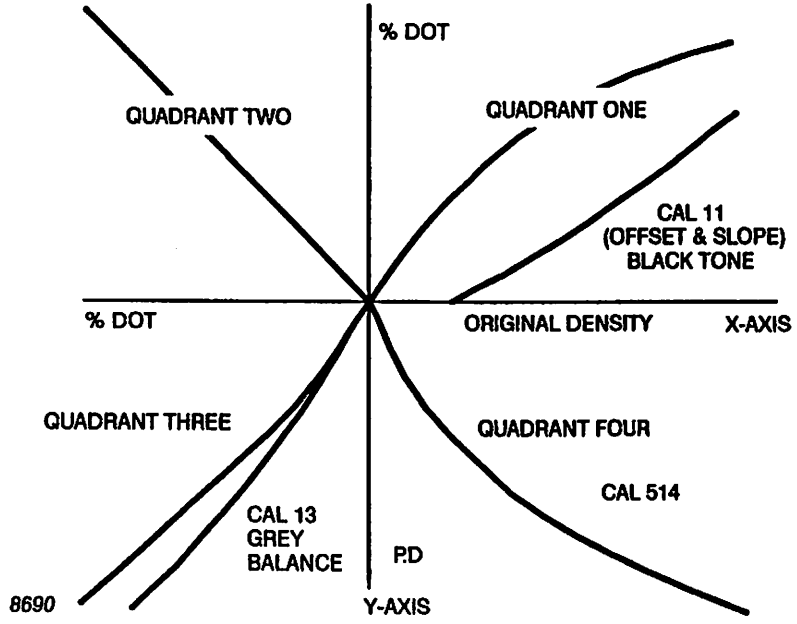


Figure 5.15 Black Tone Control Diagram

5.14.1 Black Curve

CAL 514 (Black Data)

Before carrying out CAL 514, first perform CAL 11 (Black Printer Data) with offset set to 0 and slope to 1.00 (Basic Values). CAL 11 operation is detailed under heading 'EW & EB and Black Printer' later in this Chapter.

The Black Curve is now produced by three values.

Values (a) and (b) necessitate taking reflection densitometer readings through the visual filter.

a) The grey-balanced tri-colour overprint density is the first measured value. This value is based on a Grey-balanced Overprint where the Cyan equals 100%. This means that if a Print Density (PD) Curve has been plotted, the first value for CAL 514 can be obtained from this graph.

   Note: The tri-colour overprint is Not Step 15 or 16 of the entered PD, because Cyan and Step 16 are extrapolated values. The tri-colour value entered must correspond to a 100% Cyan value in the overprint.

b) The Grey-balanced Overprint plus Black forms the second measured value. This value is obtained by measuring a patch made up of the same C, M, Y % dot values used for the tri-colour but which also has a Black overprint. The values entered should be the density of the known tri-colour values, plus the % dot of Black, which the customer would wish to see on such a Grey. For example, in an area having Cyan 100%, Magenta 84%, and Yellow 84%, a normal Black might be 70%. Therefore the tri-colour plus Black square consisting of 70% Black would be measured.

c) Additivity failure is defined as the inequality produced between adding the individual ink densities and measuring the combined ink density value. The value of additivity failure is the third figure required for the Black curve.

There is no theoretically correct value for the additivity failure due to the graphs not reaching a single point. The method to obtain the value is therefore by empirical derivation, which almost certainly entails CMYK changes being made. Any such changes to be made (within CAL 514) necessitate an Enter White (CAL 28) and Enter Black (CAL 29) being carried out. The action to be taken is as follows:

1. Perform Enter White with CAL 28 and Enter Black with CAL 29.
2. View the Black area on the transparency and adjust the third value (additivity failure) until the % dot selected for the Black in the Grey-balanced Overprint plus Black is achieved.

In the previous example, having performed Enter White and Enter Black, the values viewed on the Alphanumeric Display might be Cyan 100%, Magenta 84%, Yellow 84%, and Black 90%. The third value should then be adjusted until the Black dot% equals 70%, as required for that example.

CAL 11 (Black Data)

CAL 11 is now used to determine the start and finish points of the Black curve whose shape has been set by CAL 514.

If the Black appears too close to the highlight then an offset may be inserted in CAL 11. If this is done then it will be found that the Black will lack density at the shadow end. This may be altered by adjusting the CAL 11 slope.

5.14.2 Black Grey Balance

Whilst CAL 514 determines the Black by taking into account the ink densities, the final shape of the curve may still not be exactly that required. Using the logical sequence of making changes, the Black gradation can be changed by CAL 13 (Grey Balance) in the Black Channel. The advantage of CAL 13 is that it allows 14 working points of change to be made to the curve, two of which are extrapolated. However, a quadrant diagram has to be plotted to make such changes to the curve. This adjustment will not usually be required by the customer.

5.14.3 Black Tone

Black Tone control now includes Highlight and Shadow in addition to Midtone. The function uses the same Tone envelopes as normal Tone. The operating sequence is:

Press: TONE

Enter: B

Select: HL , MT or SH

To adjust CV, use: or ∇ , or enter n

To leave the function, press again.

5.15 ENTER WHITE AND ENTER BLACK

The Magnascan is designed to be operable as a 'two-button' scanner. That is, it can perform facsimile reproduction of transparencies or flat copy using **[ENTER WHITE]** and **[ENTER BLACK]** together with one of the following:

for manual setting of dot% in HL and SH;

gives partial neutralization of casts in HL and in SH. Automatically sets the dot% to pre-determined levels for black and white;

gives total automatic neutralization of casts in HL and SH. This neutralization process selects areas of nominally neutral density. It does not affect colours.

5.15.1 Methods of Entry

In most cases EW and EB are entered when the analyse head is pointing at the appropriate area of the original.

Alternatively, pre-determined values of HL aim point and/or SH aim point can be entered via the keypad, regardless of whether the original is on the cylinder.

This facility is useful when special effects are required or to speed the scanning process for a series of similar transparencies.

5.15.1.1 EW Procedure (CAL 28)

Press:

Enter: **28**

Press:

DENSITY DEFAULT VALUE

To change the value, Enter: **nn.nn** and press: [ENTER]

or

To step to M,

Press: [ENTER] only

To change the value, enter **nn.nn** and press [ENTER]

or

To step to C,

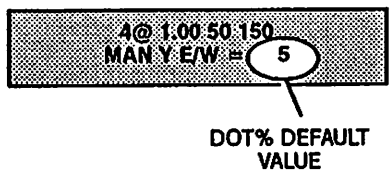
Press: [ENTER] only

To change the value, Enter: **nn.nn** and press: [ENTER]

or

To step on,

Press: [ENTER] only



To change the value, Enter: **nn.nn** and press: [ENTER]

or

To step to M,

Press: [ENTER] only.

The button/display sequences for M and C entries are similar to those for Y.

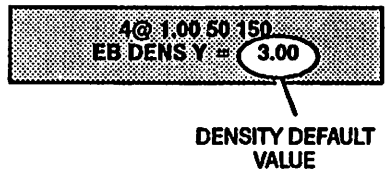
To step through the sequence, Use: [ENTER] or [▽]

5.15.1.2 EB Procedure (CAL 29)

Press: [CAL]

Enter: 29

Press: [ENTER]



The button/display sequences for EB entries are similar to those for EW.

Note: The last-used values for HL and SH aim points are stored in scanner memory. These values will be used for subsequent jobs unless/until you enter new values.

5.15.2 Use of EW and EB to Achieve Facsimile

There are three ways to Enter White and three to Enter Black.

To obtain scanner facsimile,

Press: [MANUAL] then [ENTER WHITE]

To obtain partial neutralization of HL casts,

Press: [AUTO] then [ENTER WHITE]

To obtain total neutralization of HL casts,

Press: [AN] then [ENTER WHITE]

To obtain scanner facsimile, retaining any shadow casts,

Press: [MANUAL] then [ENTER BLACK]

To obtain scanner facsimile,

Press: [AUTO] then [ENTER BLACK]

This automatically selects the highest original density and gives the automatic black level in that channel. Levels in the other channels are scaled similarly, to maintain inter-channel differences.

To obtain total neutralization of SH casts,

Press: [RN] then [ENTER BLACK]

This can give unwanted neutralization of dark near-neutrals if those are predominantly the same colour as the cast being neutralized.

Note that GB is applied to all output dot%. This is an automatic facility which compensates for deficiencies in inks, etc. The effect that GB has on dot% is to reduce M and Y signals. This should be remembered when assessing the results of any EW or EB procedure.

5.15.3 Operation

5.15.3.1 Manual Enter White

When the scanner is in the original density (ORIG) mode, with the analyse head aimed at the first printing tone, the current value display will give the density values for Y, M and C as seen by the scanner.

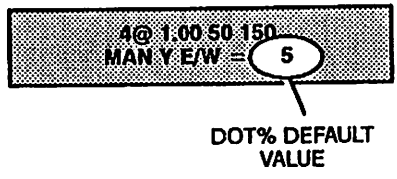
Select the lowest channel from Y, M and C (not B). Enter the dot% required in that channel. The remaining two channels will be automatically adjusted to give scanner facsimile at that entry point.

It is not essential to select a dot% to enter for that point. The scanner will enter a default value in the channel selected if no keypad entry is made.

Select lowest channel (Y, M, C, or B) and enter default value:

Press: [MANUAL]

Press: [ENTER WHITE]



Press: [ENTER]

The default value is a pre-programmed EW value. The value relates to the standard dot% for the first printing tone. The default value can be overridden, using the keypad, as follows:

Select lowest channel (Y, M, C, or B)

Press:

Press:

Enter: **n** This dot% value overwrites the default value and is retained.

Press:

Note: If the scanner is in the MAN mode with the desired colour already selected, the **[MAN]** and **[Y]** or **[M]** or **[C]** buttons need not be pressed again.

5.15.3.2 Automatic Enter White

AUTO EW will always change the HL values of copy so that any cast is partially removed. It differs from MAN EW in that Y, M, C do not have to be selected, but the default and keypad rules are the same.

AUTO EW always selects the lowest channel and deposits the default value or a keypad value in that channel. It adjusts the two remaining channels accordingly to give partial neutralization of any cast.

To obtain the default value,

Press:

then

then

To change the value,

Press:

then

Enter: **n** This value overwrites the default value and is retained.

Press:

5.15.3.3 Automatic Neutral Enter White

Automatic Neutral Enter White (AN EW) will always neutralize any HL cast. If there are already visual neutral tones in the picture, use of AN EW to remove a cast will cause those neutrals to be rendered non-neutral and will partially neutralize pastel tones. AN EW is effectively a 'two-button' control for cast removal to give facsimile as you may expect a neutral to appear.

AN EW reduces the tone in the two highest channels so that all three channels are the same value, and then applies GB. The value chosen is either the default value or an operator value entered via the keypad. The value will appear in the display's C channel after entry. If you suppress GB, all three channels will have the same value (use **[SUPP EDIT]** when no Edits are being used, to display dot% without GB).

To obtain the default value,

Press: [AN] then [ENTER WHITE] then [ENTER]

To change the value,

Press: [AN] then [ENTER WHITE]

Enter: **n** This value overwrites the default value and is retained.

Press: [ENTER]

5.15.3.4 Manual Enter Black

For scanner facsimile, when C channel is the highest original density for the SH aim point,

Press: [MANUAL] then [ENTER BLACK]

Press: [C]

Press: [ENTER]

The other two channels are automatically adjusted and all channels are grey balanced.

As in MAN EW, there is a default value for MAN EB, which can be overridden using the keypad. The default value is preset. It can be changed using CAL 21.

5.15.3.5 Automatic Enter Black

AUTO EB should be used when Y or M channels are highest in order to achieve scanner facsimile (remember, it was MAN EB when C channel was highest). AUTO EB will deposit the default value or the keypad value in the highest channel regardless of which channel is selected, other than BLACK (B).

BLACK must not be selected when setting AUTO

The other two colour channels are adjusted accordingly and all channels are grey balanced. The Black Printer is automatically adjusted but may be altered using MAN B after Y, M C, EW and EB are set.

To obtain the default value,

Press: [AUTO] then [ENTER BLACK] then [ENTER]

To change the value,

Press: [AUTO] then [ENTER BLACK]

Enter: n This value overwrites the default value and is retained.

Press: [ENTER]

5.15.3.6 Automatic Neutral Enter Black

Automatic Neutral Enter Black (AN EB) will always neutralize any SH cast. All of the colour channels are brought to the same value and then grey balanced. This can be compared to an operator looking at copy and seeing a brownish, bluish, greenish shadow etc. which in graphic arts terms would be produced as black, with the C, Y, M balanced to provide that effect. AN EB neutralizes shadow areas, not coloured areas. It is neutral-selective.

Any area that is neutral before use of AN EB will be rendered non-neutral after AN EB. Also, when neutralizing for example, a dark green shadow, other very dark greens will be neutralized or partially reduced in greenness, but a medium-tone green area will not be affected.

The Black Printer is automatically adjusted but can be altered using MAN EB after Y, M, or C EW and EB have been entered.

To give a totally neutralized result at the SH end.

Press: [AN] then [ENTER BLACK] then [ENTER]

Use of a keypad entry of AN EB is not recommended. Either the scanner will disregard the keypad entry or tone distortion will occur.

5.15.3.7 'Two-Button' Scanner Operation

Manual (MAN) entries can be made for any channel, but to achieve a 'two-button scanner facsimile' result,

Press: [MANUAL]

Select lowest channel,

Press: [ENTER WHITE] then [ENTER] then [MANUAL]

Select Cyan (highest channel),

Press: [ENTER BLACK] then [ENTER]

Any MAN entries for a Y, M or C shadow value can be made provided that the appropriate channel is selected. The other two channels are adjusted automatically according to their original (ORIG) density relationship to the channel selected.

5.15.4 EW & EB and Black Printer

The Black Printer is produced automatically by operation of EW or EB with a colour channel selected, without further operator intervention. Two ways are available to change the start and end points of the Black Printer.

a) If the Black Printer needs to be altered for one job only, use MAN EW and MAN EB in the Black channel.

b) If the Black Printer needs to be changed permanently, use the CAL 11 and Black HL/MT/SH-TONE together with the CV recall and storage blocks (CAL 111/211).

The CAL 11 facility has two parameters,

1. The 'Black Offset' which determines the starting point of the Black compared to the cyan.
2. The 'Black Slope' which determines the upper end of the Black tone shape in relation to the cyan.

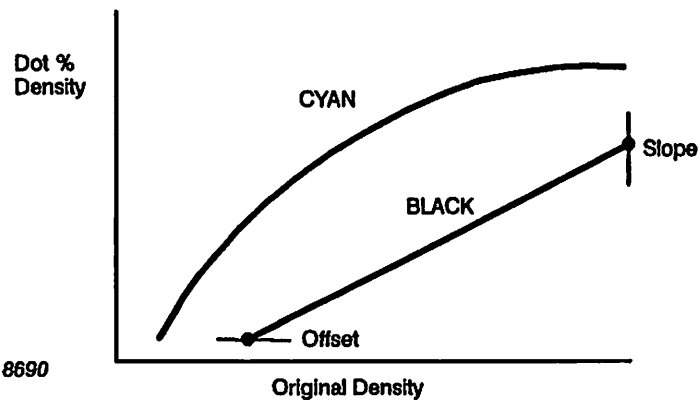


Figure 5.16 Black Printer Curves

For intermediate changes,

Press: MANUAL

Select: B

and enter the required values of EW and EB.

The Black Printer cannot exceed the maximum C shadow dot% unless MAN EW or MAN EB is used. Any later entry of EW or EB in Y, M or C will restore the automatic Black Printer image even if you have entered a modified black. Offset and slope will return to the last-used CV.

For permanent changes to the Black Offset,

Press: CAL

Enter: 11

Press: ENTER

To change the offset,

Enter: nn

Press: ENTER

To change the slope,

Enter: nn

Press: ENTER

To change to the black mid-tones,

Press: TONE

Select: B

All the Black Printer data (CAL 11 and HL/MT/SH - values) can be stored as a Customer Value (CAL 211).

5.16 TONE

5.16.1 What is Tone?

Tone is a retouching feature of the scanner that is used to change the nature of the printed results. Using this facility you can make changes to the tonal values. You can increase or decrease the contrast or detail in the scanned subject. In other words, the Tone facility alters the tone shape.

5.16.2 What It Does

Changes can be made to HL, MT or SH in any combination. Tone affects all colour channels simultaneously.

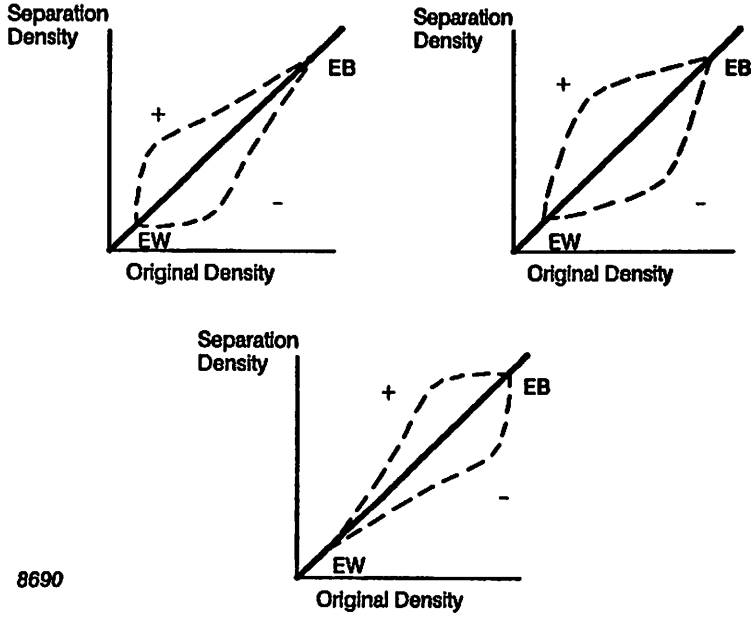


Figure 5.17 TONE Curves (HL, MT and SH)

Changes can be made using the INCREASE or DECREASE buttons [Δ] and [∇]. The displayed current values change whilst the buttons are pressed, until the maximum possible change has been made.

The numbers shown on the Alphanumeric Display are Index numbers. These relate to changes in dot% as shown in Table 5.2. Note that the change in value shown relates to the point of maximum effect of the particular Tone control.

Table 5.2 Effects of Change in Tone Index Numbers

Tone Area	Effect of Change of 1 Index Number at Point of Max Effect
Highlight (HL)	1%
Mid Tone (MT)	2%
Shadow (SH)	1%

At first, use [Δ] or [∇] and watch the Current Value display until the desired change is achieved. In time, you will be able to judge the increase or decrease needed in terms of the Index number. This can then be entered directly via the keypad.

Tone adjustments use the EW and EB points as pivot points. The values of dot% at these points are not affected by the Tone facility. (This does not hold if a very steep tone curve is used or if the EW point is non-neutral).

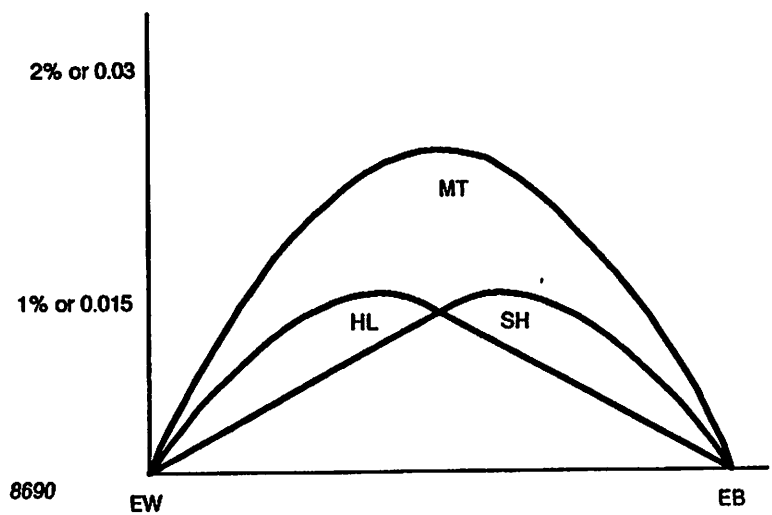


Figure 5.18 TONE-Effective of Change of One Index Number

The scanner will try to scan any curve you select. If you try to use a Tone control to produce an unnatural or illogical Tone curve, the scanner will alter this entry to give the maximum permissible Index number for the change you want to make. The scanner will bleep three times.

5.16.3 Where To Use It

Altering the Tone curve in one area will result in changes elsewhere in the curve. Table 5.3 shows what effects each Tone control function has in different tonal areas. The table should be compared with the graphs in Figure 5.17.

Transparency quality and customer's specification largely determine the changes that should be made to the Tone curve.

Table 5.3 Effects of Tone Settings

Tone Set	Effect on HL Dot%	Contrast	Effect on MT Dot%	Contrast	Effect on SH Dot%	Contrast
HL +	Higher	More Detail	Higher	Minimal Change	Slightly Higher	Slightly Less Detail
HL -	Lower	Less Detail	Lower	Minimal Change	Slightly Lower	Small Increase Detail
MT +	Higher	More Detail	Higher	More Detail	Higher	Less Detail
MT -	Lower	Less Detail	Lower	Less Detail	Lower	More Detail
SH +	Slightly Higher	Slightly More Detail	Higher	More Detail	Higher	Less Detail
SH -	Slightly Lower	Slightly Less Detail	Lower	Less Detail	Lower	More Detail

Table 5.4 gives a general indication of how to use the controls.

Table 5.4 TONE - Examples of Use

Over Exposed Subject (thin transparency)	HL+ MT+SH+
Under Exposed Subject (dense transparency)	SH- MT- HL-
Improve White Garments	HL+
Improve Snow Scenes	HL+
Improve Flat Subjects	SH- HL+
Improve Detail Overall	SH- HL+
Improve Shadow Detail	SH-
Improve Midtone Detail	HL+ MT+
Remove Detail Overall	SH+ MT- HL-
Heavier Result Overall	HL+ SH+

5.16.4 Operating Sequence

To adjust CVs,

Press: [TONE]

Select: [HL], [MT] or [SH]

Use: [▽], [△] or Enter: n

To leave the Tone function,

Press: [TONE] again.

Note: Any Tone edit can be recorded as a Permanent Tone Boost in a CV. It is recommended that the value is entered through CAL 10. Only CAL 10 values should be recalled/stored as CVs (CAL 110/210).

5.17 NEUTRAL TONE BOOST

C, M and Y channels are affected simultaneously by this function, similarly to the conventional tone control.

To access this facility,

Press: [TONE] then [↙]

To select the tonal region to be adjusted,

Select: [HL] , [MT] or [SH]

Selectivity of the tonal region is governed by the Tone Envelopes provided in Section 5.16 for the conventional Tone controls. Tone control is biased towards neutrals, although the selectivity is variable.

To adjust the selectivity of the Neutral control, now continue.

Press: [CAL]

Enter: 25

Press: [ENTER]

To proceed through the CAL 25 sequence to Step 4 (appearing on lower line of Alphanumeric Display).

Press: [ENTER] or [▽]

Enter: n , the required value.

To apply change of selectivity to Neutral tone,

Press: [ENTER]

To return to standard monitor mode,

Press: [TONE]

5.18 COLOUR CORRECTION

The six colour correction buttons are the colour retouching tools. They can be used for the following purposes:

1. To make changes in parts of the original that are not the correct colour.
2. To make changes in parts of the original which would otherwise reproduce poorly because of the type of original or the behaviour of certain colours in the original.
3. To change the overall colour correction information in the scanner to suit different inks.
4. To install new colour correction Customer Values (CVs), or to change existing ones.

5.18.1 Selection of Appropriate Controls

The colour correction buttons specify which colour in the original is to be adjusted and they are used singly in Y, M, C or B channels. The Y, M, C or B channel select buttons specify the printer which is affected by that adjustment.

The colour of the button that you use should be the nearest match to the colour that you are monitoring, e.g. to reduce magenta in greens you would monitor the green area and select the Green button and M channel. To increase yellow in greens you would monitor the green area and select the Green button and Y channel.

If you try to make an 'illegal' correction (e.g. monitoring a green area and trying to select a new % dot value in the C channel using the red colour correction button), the scanner will bleep three times and an error message will appear on the Alphanumeric Display:

Note: The above applies to direct entry of % dot values but not to the use of Increase or Decrease buttons.

5.18.2 To Enter The Change

Press: [COLOUR]

Enter: **Y M C or K**

Select: [Red HL] [Yellow HT] [Green SH] [Cyan PCR] [Violet CAL] [Magenta]

Enter: **n**

Press: [ENTER].

or Use: [Δ] or [∇]

Colour correction is denoted on the display by **CC** followed by the channel changed and then the original colour adjusted. Changes made are displayed as index numbers. The example shows that a **Colour Correction** (CC) value of **0.9** has been applied to **reduce** (-) the amount of **magenta (M) ink in yellow (Y) areas.**

Using [Δ] or [∇], causes the Index number to change. Observe the Current Value Display and release the button when the appropriate value of dot% is reached.

Entry via the keypad can be made in dot%. The Alphanumeric display will show the dot% figure until **[ENTER]** is pressed. Then the Alphanumeric Display will change to an Index number.

Note: No warning is given in the Alphanumeric Display if you try to set up an excessive value of Index number. You must check the displayed Index number yourself. The Index number should **never exceed 1.50.** Too large an edit value will produce gross colour distortion in the picture.

To see what change you have made,

Press: [SUPP EDIT]

This will temporarily suspend the selected colour correction edit to show the value before edit was applied.

Press [COLOUR] once to enter the colour correction mode. Press it a second time to exit from the colour correction mode.

Any combination of colour correction settings you make can be recorded on one of your CV blocks (CAL 212).

5.18.3 Colour Correction & Installing CVs

5.18.3.1 Colour Correction

A good colour correction can only be achieved in calculated steps over a certain period of time. Observe the following rules:

a) Under no circumstances should the colour correction be judged from results that have received selective editorial colour or tone changes.

b) Changes in tone, grey balance, cast etc., will alter the colour correction (a point often overlooked).

c) Do not judge the colour correction achieved on one subject only, but have as many jobs as possible proofed to get your final setting.

d) Avoid frequent changes of colour correction as this will only cause confusion resulting in an incorrect assessment of the real problem.

e) Always make the Black colour correction after the C, M and Y channels have been adjusted. (Changes in C, M and Y will also result in changes to the Black.)

f) Remember that the colour correction is interactive, particularly if it is made to a dirty colour e.g. olive, brown, etc..

g) Make the correction on a normal range transparency.

Note: A long/short range transparency or reflection copy may not give you the right colour correction. A long range transparency tends to have over-saturated colour correction and a short range transparency undersaturated.

5.18.3.2 New Colour Correction CVs

1. Mount the Crosfield Colour Patch on the small cylinder, emulsion up and focus on clear cylinder to give repeatable and uniform readings.

2. Select analyse aperture 2, filter B.
3. Perform an autobalance, then EW on the white patch (e.g. 5% in C) and EB on the black patch (e.g. 95% in C).
4. Use the colour correction edit facility to adjust the different colour patches.
5. When all the changes have been made, check all the different patches to ensure that changes made in one value have not affected other values.
6. Scan several jobs to verify the changes.
7. When the full set has been verified, the new set should be loaded into CV, using CAL 212. Enter all the alterations into the Log Book.

5.19 PASTEL COLOUR BOOST

This editorial control affects all colours of limited saturation whilst leaving neutrals and highly saturated colours unaffected. It is calculated from the highest dot% after removal of the neutral component and thus approximately depends upon the difference between the highest and lowest of the three dot%.

It affects both light and dark colours of low saturation but the effect is greater on pastel colours. The control affects colours where the difference between the highest and lowest is below 40% with the greatest effect at approximately 15%.

5.19.1 Colour Boost: All Colours

Press:

Press:

To apply to all colours simultaneously, press:

Select a 3-digit decimal factor between 0.00 and 2.00 for the proportion of pastel boost required (BV = 0.20) and

Press:

Repeat the above procedure until the desired amount of dot% is achieved in the higher two channels.

To return to the monitor mode, press:

twice.

5.20 SUPER PASTEL

5.20.1 Pastel Mode

The CAL 516 Pastel Mode facility allows selection of All Pastels, Clean Pastels or Dirty Pastels. It is normally applied before Pastel Boost.

Press:

Enter: **516**

Press:

To select All Pastels, Enter: **0**
Clean Pastels, Enter: **1**
Dirty Pastels, Enter: **2**

Press:

The pastel categories are:

Category	Description
All Pastels (Option 0)	Any colour which falls within the bounds of the pastel curve will be affected by a boost. This option is also the default condition.
Clean Pastels (Option 1)	Only colours with a low grey component will be affected by a boost.
Dirty Pastels (Option 2)	Only colours with a high grey component will be affected by a boost.

Note: Selection of clean or dirty pastels may require a higher boost factor to be applied than would otherwise be the case.

5.20.2 Pastel Curve

The pastel curve is equally applicable to all channels and cannot be varied for individual colours. The curve values defined in Table 5.5 may be called on the Alphanumeric Display by CAL 513, thus:

Press:

Enter: 513

Press: [ENTER]

Table 5.5 Pastel Curve Values (CAL 513)

Pastel curve step	Curve values
1)	0.0
2)	1.43
3)	3.46
4)	2.12
5)	1.14
6)	0.68
7)	0.31
8)	0.11
9)	0.0
10)	0.0
11)	0.0
12)	0.0
13)	0.0
14)	0.0
15)	0.0
16)	0.0

5.20.3 Colour Selective Boost

Pastel boost is now colour selective. To apply the boost factor to a particular colour:

Press: [COLOUR]

Press: [ ] PASTEL R 0.0

Press: [HL] , [HT] , [SH] , [PCR] , [CAL] , [ ]

Red Yellow Green Cyan Violet Magenta

Select 3-digit decimal factor between 0.00 and 2.00 to apply pastel boost to selected colour and

Press: [ENTER]

Repeat the procedure for colour selective boost until the desired amount of dot% is achieved in the higher two channels.

To return to the monitor mode,

Press:

twice.

5.21 POLYCHROMATIC COLOUR REMOVAL

Polychromatic Colour Removal (PCR) is defined as 'the removal of the neutral component in any colour and its replacement by the black printer'.

When a colour is separated into its three component colours, the lowest channel, and equivalent levels of the other two colours, only affect the grey component of the colour. Using PCR will effectively replace this neutral colour with black and re-proportion the component colours to give the original colour. This means that when three colours are overprinted one of them will always be black.

For acceptable reproduction using PCR it is essential that grey balance is accurately set up for the appropriate printing conditions. A detailed procedure for the adjustment of grey balance and other printing parameters is described in the PCR User's Guide, 6500-3530.

Once the scanner has been set up to the appropriate printing condition the following basic procedure can be used to specify the level of PCR required on a particular job.

5.21.1 Basic Operating Procedures

Setting PCR Using the Gain Method

Press:

Respond:

Enter a 3-digit decimal value between 0.00 and 1.00 for the proportion of PCR required (BV = 1.00) and

Press:

Setting PCR Using The Maximum Overprinting Method

For maximum overprinting of ink weights as a dot%, enter a 3-digit value for ink weight maximum dot%. Select PCR as described in the previous section, enter a minimum gain, 0.01, then proceed as follows:

Set up the scanning head on a solid tone, then:

Press: [CAL]

Enter: **65**

Enter: **nnn**

Press: [ENTER]

The colour channel displays will count up until the required gain is reached.

5.21.2 Editorial Procedure

For editorial use the weight of black can be balanced with the weight of the colour under black.

Limiting Black

To increase or decrease the weight of black,

Press: [CAL]

Enter: **524**

Enter new value (BV - 1.00) and press: [ENTER]

Repeat the above procedure until the desired weight of black is achieved.

Adding Three-Colour Under Black

Three-colour inks can be added to reinforce the black printer where additional density is required in shadow areas.

Press: CAL

Enter: 523

4@ 1.00 50 150
PCR OFST% 100

Enter the break point as a dot% (BV = 100%) and

Press: ENTER

Repeat the above procedure until the desired weight of colour under black is achieved.

Note: It is recommended that CAL 524 be set before CAL 523.

5.21.3 Additional PCR Procedures

PCR Restricted to Highlights

The PCR gain reduces from the maximum value (unity) at the breakpoint, to zero at the dot% (positive value) selected by the operator. The breakpoint is set (by the system) to a % dot value half way between the operator value and 0% dot. A normal separation without PCR is produced at the shadow end.

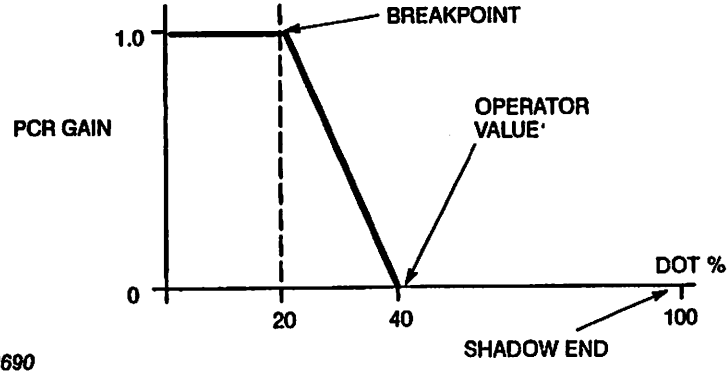


Figure 5.19 Reduction of PCR in Shadows

The sequence of operation is,

Press: CAL

Enter: 525

Press: ENTER

Enter a positive value of dot% up to a maximum of 100%, and

Press: ENTER

The scanner then returns to monitor mode.

PCR Restricted to Shadows

The PCR gain increases from zero at the dot% (negative value) selected by the operator to the maximum value (unity) at the breakpoint. The breakpoint is set (by the system) to a % dot value half way between the operator value and 100% dot. A separation without PCR is produced at the highlight end.

Note: Dot% values selected by the operator are entered as negative numbers.

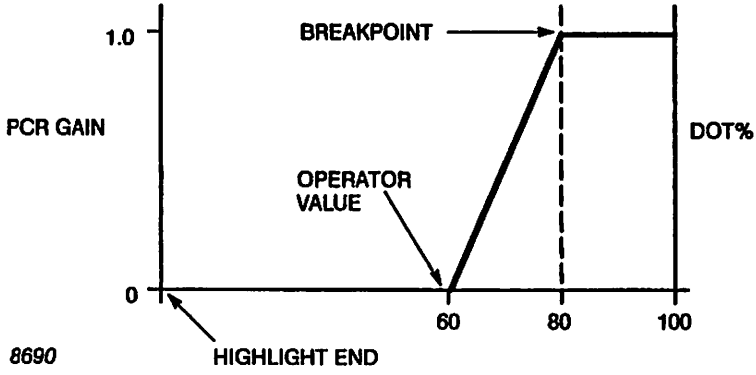


Figure 5.20 Reduction of PCR in Highlights

The sequence of operation is,

Press: CAL

Enter: 525

Press: [ENTER]

Enter a negative value of dot% from 0 to -100 (%), and

Press: [ENTER]

The scanner then returns to monitor mode.

PCR Highlight Colour Modifier

The PCR Highlight Colour Modifier function removes colour from a specified dot% area. A two-value, dot% entry system is used to select the region to be affected. Once CAL 527 has been selected, the first value specifies a point up to which a black-and-white result will be produced, all colour being removed. The second value specifies a point where the PCR colour is returned to normal. Colour is introduced progressively between the two values.

The sequence of operation is:

Press: [CAL]

Enter: 527

Press: [ENTER]

Enter a dot% value (less than 100%), and Press: [ENTER]

The first value appears at the right of lower line on the Current Value Display.

Enter a dot% value higher than the first value, and

Press: [ENTER]

The modified dot% appears at the right of lower line on the Current Value Display.

PCR Black Modifier

The PCR Black Modifier function progressively increases or decreases the weight of the Black Printer to approximately 40% dot. It is advisable to check the shape of the black curve when using this function.

The operating sequence is,

Press: CAL

Enter: 528

Press: ENTER

(typically)

Enter a dot% (up to 40%) and press: ENTER

The modified dot% appears at the right of lower line on the Current Value Display.

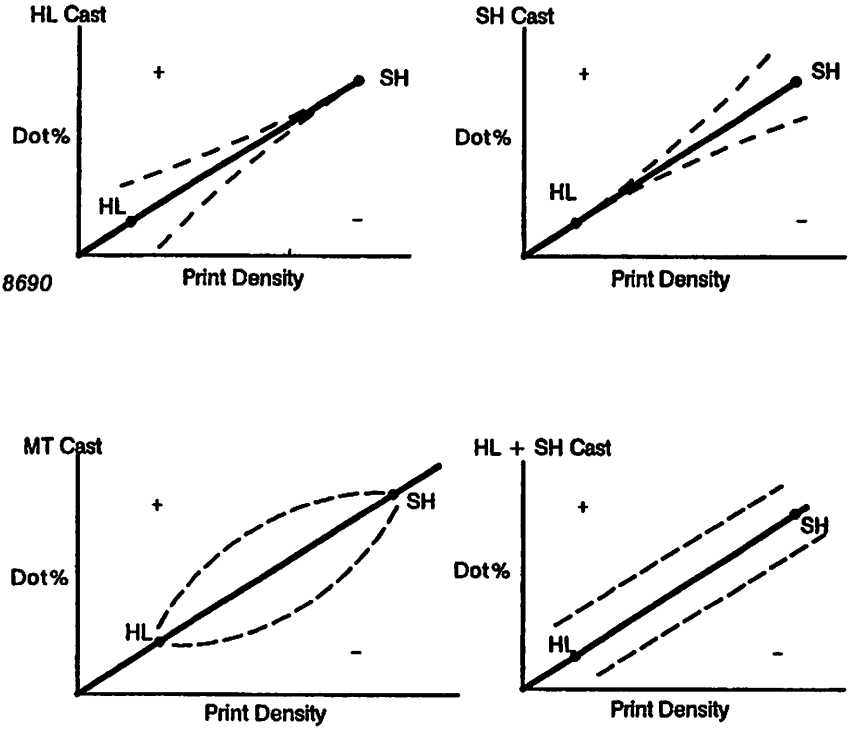
5.22 CAST

This is a retouching feature that is used to remove or introduce casts. It can also be used after scanning as a re-scanning or final correction tool; where a positive is found to be up or down in Y, M or C (after proofing for example). To correct the fault, set the scanner up to the JV previously used but apply Cast at the appropriate stage in the procedure. There are two Cast buttons which are both channel selective. Cast 2 must be used before Cast 1.

Cast 2 is used to remove or add Y, M or C individually to neutrals in the SH only, without affecting colours. For example, SH is too brown and needs C to make it nearer to neutral.

Cast 1 is used to remove or add Y, M or C casts independently in each colour channel, in the HL, MT and/or SH areas. It affects all areas of the subject simultaneously whether they are coloured or neutral. Note that a linear shift is achieved with the use of HL and SH Cast (see Figure 5.21).

Graphs showing how Cast works,



Key to graphs

———	The SEP dot% before use of Cast
- - - - - - - - - -	The effect of using Cast, (maximum effect)
HL	= Highlight or first printing tone
MT	= Mid tone
SH	= Shadow tone

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Figure 5.21 CAST Curves

5.22.1 Alternatives to CAST 1 and CAST 2

It is not necessary to use Cast unless:

- Use of EW and EB does not give the desired result.
- You wish to introduce a cast.
- You wish to remove an overall cast.

Remember that facsimile reproduction can mean:

- as the scanner sees it - scanner facsimile
- as the observer sees it - observer facsimile.

To obtain scanner facsimile,

Press: MANUAL then ENTER WHITE

To obtain partial neutralization of HL casts, approximating to observer facsimile,

Press: AUTO then ENTER WHITE

To obtain total neutralization of HL casts, giving observer facsimile,

Press: AN then ENTER WHITE

To obtain scanner facsimile when C is highest in ORIG mode,

Press: MANUAL then ENTER BLACK

To obtain scanner facsimile when M or Y is highest in ORIG mode,

Press: AUTO then ENTER BLACK

To obtain total neutralization of SH casts, giving observer facsimile,

Press: AN then ENTER BLACK

5.22.2 Operating Sequences

Cast 2 must always be used before Cast 1.

Cast is placed near the end of the operating sequence so that:

1. It can be used as a retouching tool to correct work;
2. All of the edit functions interact properly;
3. If Cast is needed to adjust the Tone curve when the correct use of EW and EB has failed, Cast will not interfere with the other edit controls.

Suppose you wish to make obvious changes to an original, which cannot be achieved by use of EW and EB. Use the Cast edit immediately after EW and EB to produce the reproduction characteristic desired. Then, proceed through the other edit functions you wish to use. When you reach the Cast stage in the operating sequence check the transparency again and make any further adjustments necessary.

Cast 2

When you select **[CAST 2]** the scanner knows that the SH should be monitored. You do not need to select **[SH]**.

Press: [CAST 2]

Select: **Y, M** or **C.**

Enter: **nn** and press: [ENTER]

or Use: [Δ] or [∇] until the required value is achieved.

nn = % dot change in the extreme shadows of the selected colour. The maximum change is ±40 %.

Cast 1

[CAST 1] must be entered separately for HL, MT and SH. You might use the buttons in the following order:

Press: [CAST 1]

Select : , or

Select: **Y, M or C.**

Enter: **nnn** and press:

or Use: or

nnn = the maximum % dot change in the selected tonal region and colour.

For Cast 1 at the HL, to affect two colour channels you might:

Press:

Select : and

Use: or

Select:

Use: or

Then: clears all Cast settings

clears Cast 1, HL and MT

clears Cast 1, SH and Cast 2 MT

To exit from the Cast mode,

Press: or again.

Cancelling Cast Edits

After leaving Cast it is possibly to cancel edits by pressing **[EB]** or selecting **[Cancel Edit]**.

5.22.2.1 How To Enter Cast Values

Suppose a transparency has a magenta cast. The customer requires the cast to be reduced slightly but not removed. Select the MAN EW mode to maintain the balance of the transparency and set the scanner mode to put 5 % dot in the lowest channel at the first printing tone.

This might give: Y = 5 % dot
M = 25 % dot
C = 8 % dot.

You think you should reduce the M value to 15 %. You have already tried AUTO EW but not achieved the correct result.

You **cannot** reduce the M value directly from 25 % to 15 % by entering 15 % on the keyboard. You must either use [Δ] or [∇] to enter the appropriate Index number.

Use [∇] with M channel selected so that the M value falls. Stop when the value reaches 15 %. The Alphanumeric Display will show an index number of about -10.

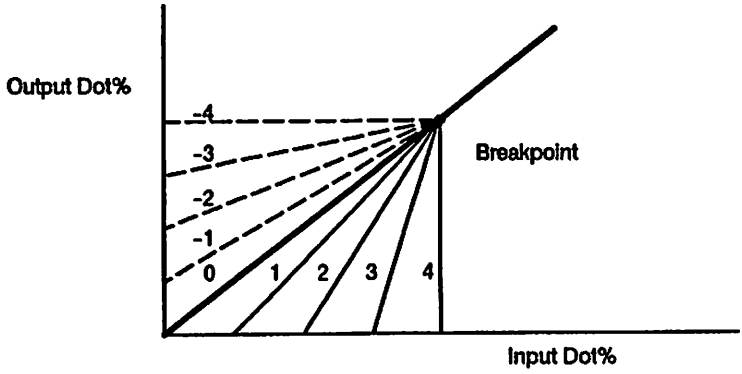
5.23 CATCHLIGHT (CL)

5.23.1 Function

The Catchlight (CL) control should be used to create highlight drop-out effects on small sparkly areas. It is not intended to be used to give a clean break from one HL tone to another in the same manner that a HL mask could be used in conventional graphic arts.

You can enter a CL value that will determine the lowest value of screen dot that will appear on film. Ideally that value will be equal to or lower than the lowest channel value at EW (so as to maintain the GB values for the EW point). CL will affect dot% on all tones that are below CL BP. Care should be taken not to introduce colour fringes (contouring).

Slope (SL) is the severity with which the CL will be applied.



Note: Slope index values are shown against relevant lines

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Figure 5.22 CATCHLIGHT - Slope Curves

Slope index values for catchlight values are from 0 to 4.

0 = No SL, which renders CL inactive.

1, 2, 3, 4 = increasing levels of SL.

Using a SL of 4 will cause all screen dot to drop out below the BP that has been selected.

Slope index values -1 to -4 may occasionally be used for certain special effects.

5.23.2 Operation

Press: [CAL]

Enter the value for the lowest channel and

Press: [ENTER]

Enter the SL value and Press: [ENTER]

The Alphanumeric Display will revert to normal monitor mode.

To inspect BP or SL, without entering a value,

Press: [CAL] then [↙] or [↗]

Any CL setting can be stored as a CV, using CAL 217.

5.23.3 Channel Selective Catchlight

Catchlight colour selectivity for a specific channel applies only to slope. To access colour selectivity,

Press: [CAL]

(typically)

Enter the breakpoint value for the lowest channel (typically .05).

Press: [COLOUR]

Enter a slope value in range 0 to 4 (typically 3).

Press: [ENTER]

Define slope for Magenta and Cyan channels similarly as for yellow. After pressing **[ENTER]** for Cyan, the monitor mode is resumed.

Note: Catchlight will be applied to all channels, i.e. not selectively, if the **[COLOUR]** button is not selected.

5.24 COLOUR NEGATIVE SCANNING

As no stringent quality control is applied during colour negative processing, the resulting scan is unpredictable. Therefore colour negative scanning should ONLY BE UNDERTAKEN WITH THE USE OF A SCANVIEW OR IMAGEDIT to allow easy correction before producing separations and proofs. Stain Contours should NOT BE USED, as parameters would have to be set up for every negative scanned.

The method of scanning is as follows:

1. Press:

   Enter: **530**

   Press:

   Press:

to change the selection

   Press:

to keep the current selection and leave the display.

2. Set analyse head on the Pink Rebate of the negatives or, alternatively, on lightest area of the negative.
3. Perform autobalance sequence (transmission copy). The value that the scanner will show in the current value display for original should be 3.90 in the Autobalanced area.
4. Enter Black on the rebate or lightest area. Alternatively, note the highest value found in the lightest area and enter this in all three colours using CAL 29.
5. Enter White in the darkest area found. Alternatively, note the lowest value found in the darkest area and enter this in all three colours using CAL 28.
6. Scan to Scanview or ImagEdit.
7. Check that a visible image appears on the Scanview/ImagEdit monitor. If this does not appear select CAL 2829 on Scanview/ImagEdit - this loads a default Enter White/Enter Black on the Scanview/ImagEdit. When using CAL 2829, ensure

either Auto Refresh is enabled, or carry out a Display Image function.

8. Carry out best possible Enter White and Enter Black upon the image, using Scanview or ImagEdit.
9. Edit, as required, using Scanview or ImagEdit.

Note: When scanning negatives, if the midtone values are found to be consistently low, change luminosity values as required.

5.25 REGISTER MARKS

5.25.1 Function

Three types of register marks can be selected and exposed around the edge of the scanned image. Note that other generated images, text and colour identifiers, are controlled from the Text Headings software. See Section 7.3.4.

5.25.2 Operation

To view the current setting or change to a different type proceed as follows:

Press: CAL

Enter: 880

REG MARK TYPE 0
COL-ID BLKS ON

To change to a different register mark type, press:
0 for + type mark
1 for T type mark
2 for continuous horizontal (Shimo Gaki) type

Press: 1 For example, press [1]. The display changes.

To select or deselect colour blocks , press:
[Y] for blocks on
[N] for blocks off

Press: Y For example, press [Y]. The display changes.

Note: If mark Type 2 (Shimo Gaki) is selected blocks will be switched off automatically.

Press: ENTER To leave the display, press [Enter]. The current register mark selection will be used for all subsequent exposures.

5.26 SCANNER GENERATED VIGNETTES

Scanner generated vignettes can be obtained up to maximum dimensions for all Formats applicable to the scanner type.

The vignettes will be output entirely from the expose unit of the scanner. To create vignettes,

Press: [CRL]

Enter: **56**

Press: [ENTER]

VIGNETTE EXPOSE YES/NO

If vignette is not required, press: [↔ NO]

The Scanner reverts to monitor mode.

If vignette is required,

Press: [↕ YES]

VERTICAL (YES) ? HORIZONTAL (NO) ?

If Vertical is required, press: [↕ YES]

A two-point linear vignette can be exposed from top to bottom of the film.

If Horizontal is required, press: [↔ NO]

A two-point linear vignette can be exposed from left to right.

ENTER VIGNETTE COLOUR 1Y

(for vertical/horizontal vignette, as selected)

Colour 1 refers to the first point of the vignette; Y indicates that a dot% has to be selected for the Yellow channel. A high % indicates a dense value for the first point of the vignette; conversely, a low % indicates a light value; default value will be 0% if **[ENTER]** is pressed without a numerical selection being made.

Select the dot% value and press: ENTER

The value selected appears on right of **1Y.**

The lower line of the Alphanumeric Display changes to **COLOUR 1M,** indicating dot% is to be defined for Magenta channel.

Enter dot% values, in turn, for magenta (M), cyan (C) and black (B) channels. Note registration of values on the displays, as appropriate.

When all colour channels for the first point have been entered, the procedure continues:

ENTER VIGNETTE COLOUR 2Y

For the second point of the vignette, enter dot% values for Y, M, C and B channels, in turn, in the same manner as for the first point.

Note: If **[ENTER]** is pressed without specifying a dot% for the channel, a default value is assumed. The dot% will default to 0% or 100% according to whether a high or low value has been entered, respectively, for the first point.

When colour channels for the second point have been entered, the procedure continues:

ENTER VIGNETTE HORZ SIZE

Enter the horizontal size final value in mm. The value is displayed at the right of **HORZ SIZE.**

Press: ENTER

ENTER VIGNETTE VERT SIZE

Enter the vertical size final value in mm. The value is displayed at the right of **VERT SIZE.**

Press: ENTER to return to monitor mode.

5.27 STEP AND REPEAT

Multiple exposures of an image can be made in each available format size using the Step and Repeat function. This function can be used with either manual formatting or Autoformat. It can also be used in combination with Film Save.

To begin Step and Repeat,

Press: FORM

Press: X → ENTER HORIZONTAL REPEAT NO

Enter a value up to 32, as required.

Press: ENTER → ENTER VERTICAL REPEAT NO

Enter a value up to 32, as required. Permissible ranges are:

32 for 1@
16 for 2V
10 for 3@
8 for 4@

Note: 2H is not a valid format for the Step and Repeat function.

Press: ENTER → ENTER HORIZONTAL SEP GAP

Enter a value up to 25.0 mm (in 10ths of mm; minimum value is 0.2 mm), and

Press: ENTER → ENTER VERTICAL SEP GAP

Enter a value up to 25.0 mm (in 10ths of mm; minimum value is 0.2 mm).

Press: ENTER

5.27.1 Return to Normal Scanning

After execution of the Step and Repeat function, return to normal scanning is made with the procedure:

Press:

Horizontal and vertical repeat numbers revert to a default value of 1. Horizontal and vertical gaps will remain as set during the last Step and Repeat operation.

To return the scanner to normal operation at any time during setting-up of Step and Repeat,

Press:

5.28 IMAGE OFFSET WITH BORDER (626F, 636F and 646 only)

An image can be offset with a border using the CAL 60 procedure. This is represented in Figure 5.23.

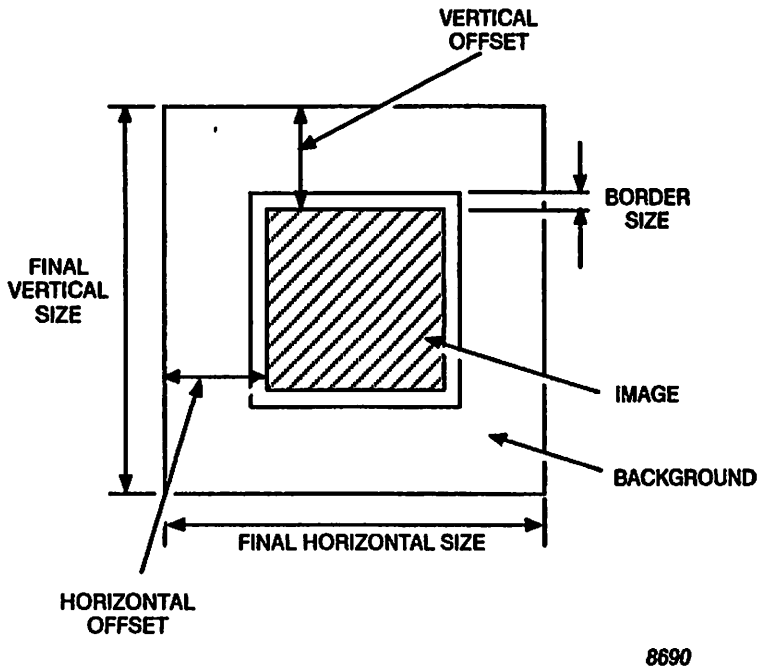


Figure 5.23 Image Offset with Border

This procedure is as follows:

Press:	CAL	
Enter:	60	
Press:	ENTER	SCAN TINT MODE Y/N
Press:	↕ YES	VERTICAL OFFSET 000.0

Enter a value of vertical offset (in mm) and

Press: [ENTER]

Enter the horizontal offset similarly to the vertical offset. After pressing **[ENTER]** the display for final vertical size is obtained.

Enter the value (in mm) of the final vertical size and

Press: [ENTER]

Enter the final horizontal size similarly to final vertical size and

Press: [ENTER]

Enter the value of the border, which may be as low as 0.2 mm, and

Press: [ENTER]

Enter the tint value (from 0 to 100), as required, and

Press: [ENTER]

The Alphanumeric Display then calls the next colour, i.e. Magenta.

Define border colours Magenta, Cyan and Black in turn, as required, similarly to Yellow. After pressing **[ENTER]** for Black border colour the display appears as follows:

Enter a value between 0 and 100, as required,

Press: [ENTER] once.

Define background values for Magenta, Cyan and Black, in turn. After pressing **[ENTER]** for Black, note:

1. Use: to step back through the routine, e.g. to check a value entered at an earlier point.

2. Use: to step forward through the routine.

3. To return to the monitor mode, Press: again.

Note: 'Image Offset with Border' is also possible with scanner type 636 EF/MF, refer to Operator's Manual, 6500-8710.

5.29 LIMIT

The gravure process requires that there should be no density in the separations higher than a specified maximum density. A similar requirement often exists for web offset or letterpress. The Limit control cuts off the tone in a picture at a specified dot%.

Upper (SH) and lower (HL) dot% limits can be set. Applying Limit will prevent any dot% from being either above the upper limit or below the lower limit.

Individual limits can be set in one or more colour channels Y, M and C. Alternatively, common limits can be set in Y, M, C channels. Black limits are always set separately. It is not necessary to monitor the original in order to set limits.

If both [SEP] and Limit buttons are selected, the limit dot% values are shown on the Current Value Display.

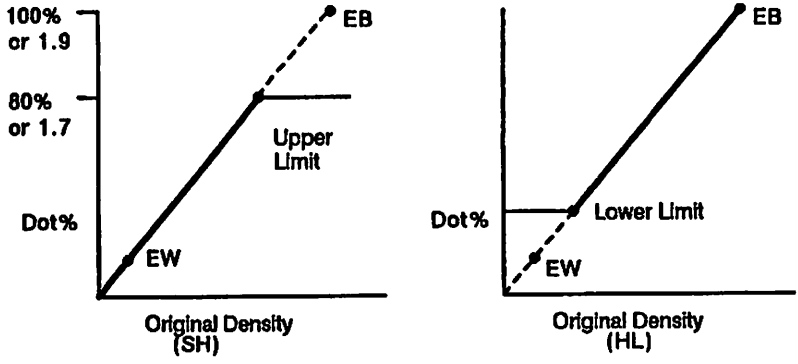


Figure 5.24 LIMIT Curves

5.29.1 Operating Sequences

Common Limits

Press:

To change the common HL Limit in C, M and Y:

Press:

This negative limit default value is set at a very low level so as to have no effect under normal operating conditions.

Enter the required dot%, i.e. for 5%:

Enter: **5**

To leave LIMIT mode, press: ENTER

To change the SH Limit in C, M and Y, use the same procedure as above but press **SH** instead of **HL**. Note that the SH Limit default value is set at a high level so that it will have no effect under normal operating conditions.

HL and SH limits can be used simultaneously to produce uniform tint blocks. SH limit below the HL Limit. The SH Limit will override HL limit:

e.g. HL limit = 50%, SH limit = 45%, result = 45%.

To change the HL or SH Limits in Black, press **B** then the Limit button, then either **HL** or **SH**. Enter the Limit value in the same way.

Individual Limits

Press: and COLOUR

Press: HL

To set a new limit in Y, i.e. 12%:

Enter: **12**

To step to M limit, press: ENTER or .

The sequence will continue through C and B limits. A similar sequence for SH Limits is followed if **SH** is pressed instead of **HL**.

5.30 LINE MODE

This mode is used if line work such as drawings or text is scanned. It is also used to create drop-out or burn-out masks and line boost masks.

A breakpoint (% dot value) is chosen by the operator. The scanner computer monitors the C, M, Y and B separation dot% values related to the picture area being scanned. Dot% values below BP are changed to a constant lower limit value. Dot% values above BP are changed to a constant upper limit value. The operator can choose these limit values using the LIMITS functions, (before using the LINE function). The upper and lower limit default values are 110% and -10%.

The picture signal entering the expose unit has only two values, which correspond to the upper and lower limits of output dot%. A dot pattern is seen on separations only at the boundaries between high and low density areas.

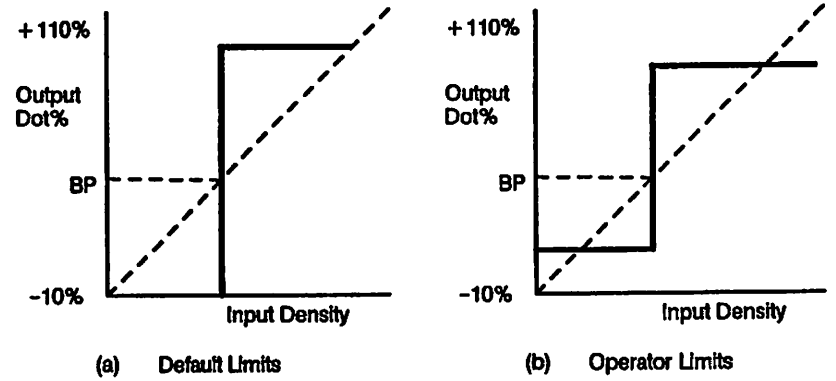


Figure 5.25 LIMITS

This facility may enhance detail in some areas of separation and remove it in others, depending on the BP and limits chosen. Experience will reveal the full potential of LINE mode. A BP of 50% dot and -10/110% limits will give clean line work.

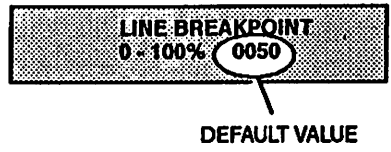
5.30.1 Operation

Note: If you have set limits for a previous job, which are not needed in LINE mode, remove them first. To enter LINE mode:

Press: [CRL]

Enter: **509**

Press: [ENTER]



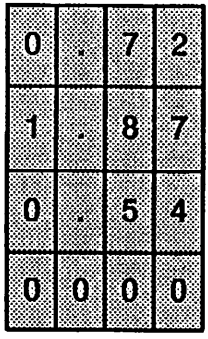
To enter the default value, press: [ENTER]

To change the BP value, Enter: **nn** and press: [ENTER]

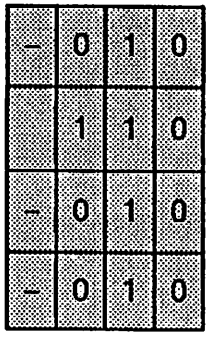
The displayed BP value changes as you use the KEYPAD.

If SEP is selected, the Current Value Display will show the separation dot% in each channel, during exposure. The values will jump from the upper limit to the lower limit and vice versa, as the original density of the scanned area lies above or below the BP.

If **[ORIG]** is selected, the Current Value Display will show the original density in each channel, during exposure.



(a) **[ORIG]** selected



(b) **[SEP]** selected

5.31 TEXT IN BORDERS

5.31.1 Text, Register Marks and Colour Coding Suppression

All border text, including register marks and colour coding, can be suppressed using CAL 889. To view or change the current set-up:

Press:

Enter: 889

Press:

TEXT SUPPRESSED
CHANGE Y/N ?

Press:

to change the selection

Press:

to keep the current selection and leave the display.

5.31.2 Reversed Text

All border text, including register marks and colour coding, can be exposed either right-reading (normal) or laterally reversed, as viewed on the film with emulsion up. The default condition is NORMAL and will result in laterally reversed text appearing on a proof or Cromalin. To obtain right-reading text on proofs use CAL 881:

To view or change the current set-up:

Press:

Enter: 881

Press:

NORMAL TEXT
CHANGE Y/N ?

Press:

to change the selection

Press:

to keep the current selection and leave the display.

5.32 EXPOSE

An exposure can be initiated directly from the analyse unit. This procedure is only possible on scanner systems with lid-locked expose units.

Press:

PRESS YES TO START
REMOTE EXP

Press:

The Expose sequence is initiated.

Alternative methods, which require use of **EXPOSE** keys on both analyse and expose units, are:

1. First alternative.

   Press:

   Ignore Alphanumeric Display

   Press:

   On pressing this key, the exposure is initiated.

2. Second alternative (assumes a case where the operator is not ready to initiate exposure immediately).

   Press:

   PRESS YES TO START
   REMOTE EXP

   Press:

   EXPOSE 1 NOT READY

   When you are ready to expose,

   Press:

   On pressing this key, the exposure is initiated.

5.33 STAND ALONE EXPOSE UNITS

Stand-alone expose units have a special keyboard from which output functions such as dot shape, screen ruling and neg/pos selection can be controlled. Many of these functions are normally entered via the analyse unit on standard IE or IM systems; on stand-alone analyse units this is not possible.

Table 5.6 lists those CAL numbers which can be entered via the stand-alone expose keyboard.

Table 5.6 Stand-alone Expose Unit CAL Numbers

Negative Black Printer	38
Expose Head Position	43
Select Laser Power	46
Vignette	56
Line Mode	509
EDG Dot Shape	701
Pos/Neg Dot Shape	702
Autoformat Selection	888
Text Enable	889
Disable Picture Butting	890
Screen Pitch Ins/Cm	893
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CHAPTER 6

SPECIFIC PROCEDURES - SDT AND SI/63

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CHAPTER 6

SPECIFIC PROCEDURES - SDT AND SI/63

6.1 INTRODUCTION

The software for the Studio HSI and HSI/64 systems is held on a hard-disk memory within the Studio HSI chassis or HSI cabinet. The operation of these systems is described in Chapter 7.

This chapter describes the differences found on earlier systems where the software was loaded from floppy disks. Two floppy disks are used, Scan-to-Film and Scan-to-Disk. The software levels described in this manual are 9.05 and 9.80 respectively.

The operations which can be performed will depend on the configuration:

- 646 IE or IM scanners

  Job File facilities

  Scan to film operation.
- 646 IE or IM scanners with SI/64 Upgrade

  Job File facilities

  Scan to film operation

  Scan to CDC or Winchester disk operation.
- 636 IE or IM scanners with SI/63 Upgrade

  Scan to film operation

  Scan to Winchester disk operation.
- 646 type Scanning Stations

  Job File facilities

  Scan to CDC or Winchester disk operation.

6.2 SCAN-TO-FILM OPERATION

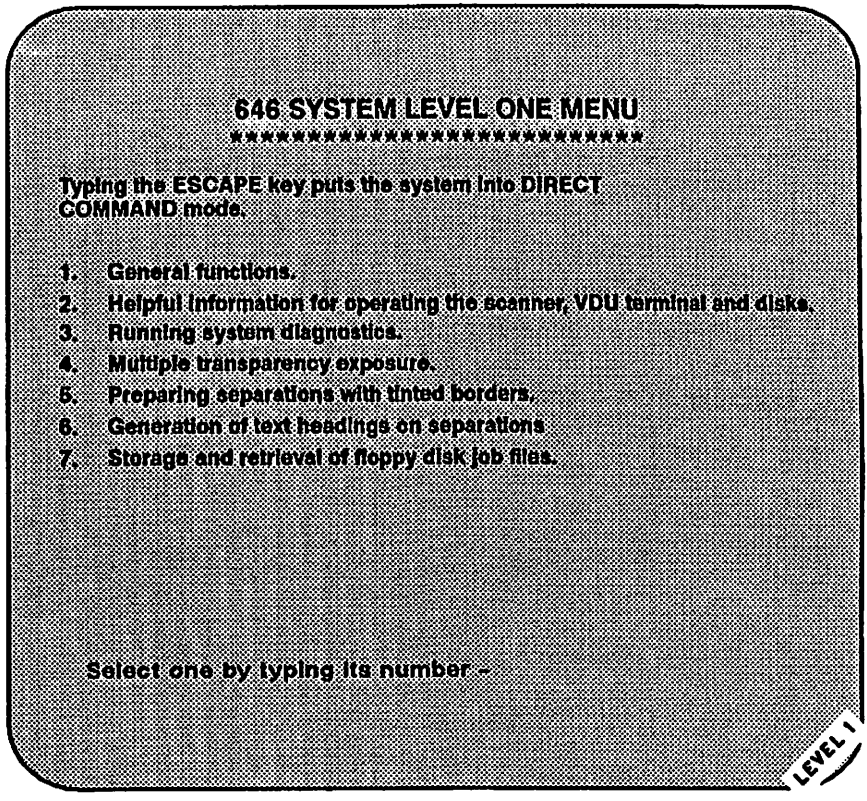
The Scan-to-Film floppy disk is initially loaded in the left-hand drive of the floppy-disk unit and booted (see Section 4.1.6).

The procedures available are given in a Level One Menu which is shown on initial booting and which can be returned to from screen prompts. The Level One Menu gives a choice of seven procedures. The detail for each is obtained by selecting its menu, called the Level Two Menu. The Level Two Menus lead to the specific steps and entries. In some instances a third level menu is given which gives rise to a set of options.

To return to the Level One Menu at any time, Press **[ESC]** twice.

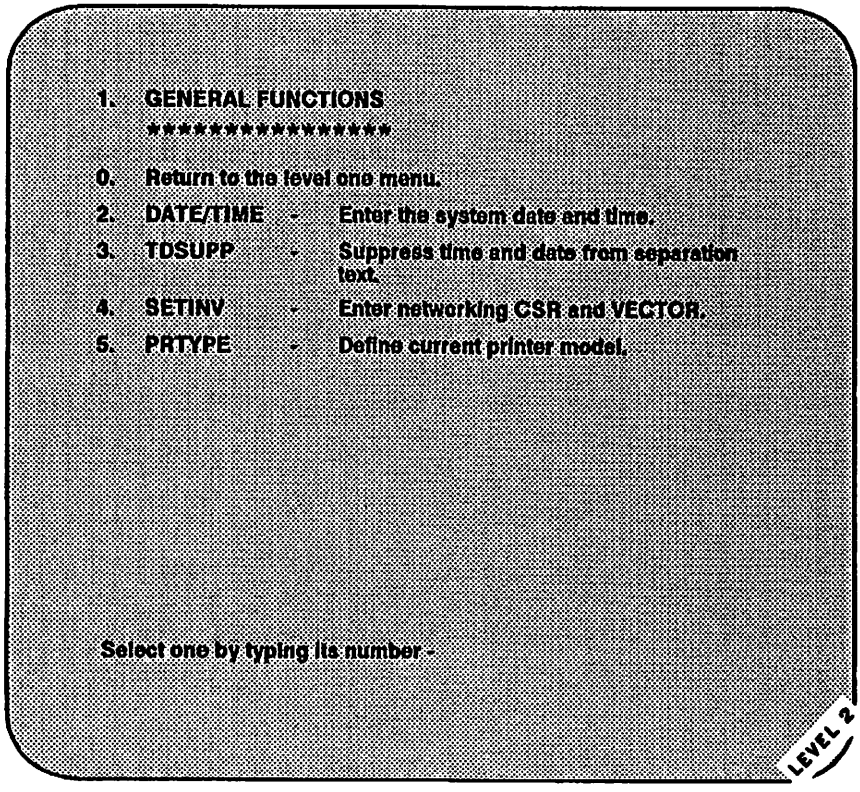
If for any reason during these procedures you are unable to return to the Level One Menu, i.e. you make an illegal entry, you must press the Boot button and re-enter the date and time to restore the Level One Menu to the VDU screen.

The Level One Scan-to-Film Menu is:


646 SYSTEM LEVEL ONE MENU
****
Typing the ESCAPE key puts the system into DIRECT COMMAND mode.
1. General functions.
2. Helpful information for operating the scanner, VDU terminal and disks.
3. Running system diagnostics.
4. Multiple transparency exposure.
5. Preparing separations with tinted borders.
6. Generation of text headings on separations
7. Storage and retrieval of floppy disk job files.
Select one by typing its number -
LEVEL 1

6.2.1 General Functions

To obtain the General Functions Menu from the Scan-to-Film Level One Menu, select [1].


1. GENERAL FUNCTIONS
****
0. Return to the level one menu.
2. DATE/TIME - Enter the system date and time.
3. TDSUPP - Suppress time and date from separation text.
4. SETINV - Enter networking CSR and VECTOR.
5. PRTYPE - Define current printer model.
Select one by typing its number -
LEVEL 2

Option 2 - DATE/TIME operates in the same way as the same way as the DATTIM function described in Section 7.3.1.

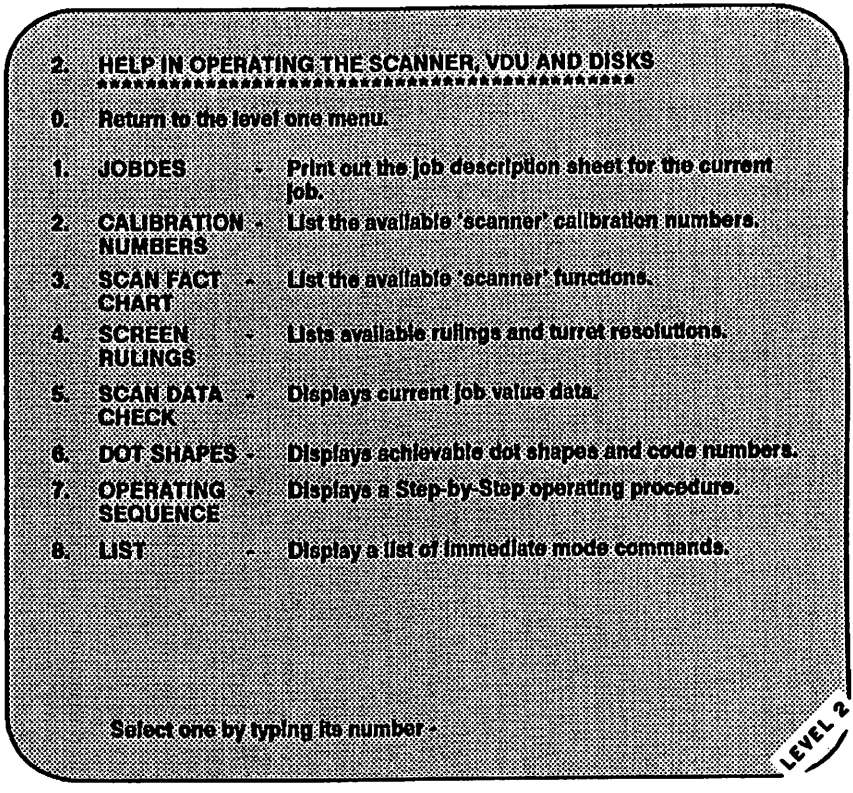
Option 3 - TDSUPP is described in Section 7.3.2.

Option 4 - SETINV is no longer used.

Option 5 - PRTYPE is no longer used.

6.2.2 Help File

To obtain the Help Menu from the Scan-to-Film Level One Menu, press **[2]**.


2. HELP IN OPERATING THE SCANNER, VDU AND DISKS
0. Return to the level one menu.
1. JOBDES - Print out the job description sheet for the current job.
2. CALIBRATION NUMBERS - List the available 'scanner' calibration numbers.
3. SCAN FACT CHART - List the available 'scanner' functions.
4. SCREEN RULINGS - Lists available rulings and turret resolutions.
5. SCAN DATA CHECK - Displays current job value data.
6. DOT SHAPES - Displays achievable dot shapes and code numbers.
7. OPERATING SEQUENCE - Displays a Step-by-Step operating procedure.
8. LIST - Display a list of immediate mode commands.
Select one by typing its number -
LEVEL 2

Note: It is also possible to enter the HELP function directly from the command mode by pressing **[HELP] [RETURN]**.

6.2.3 Running System Diagnostics

Correct function of units in the system is tested automatically by selecting diagnostic programs. No other use of the system is possible when diagnostic programs are in use.

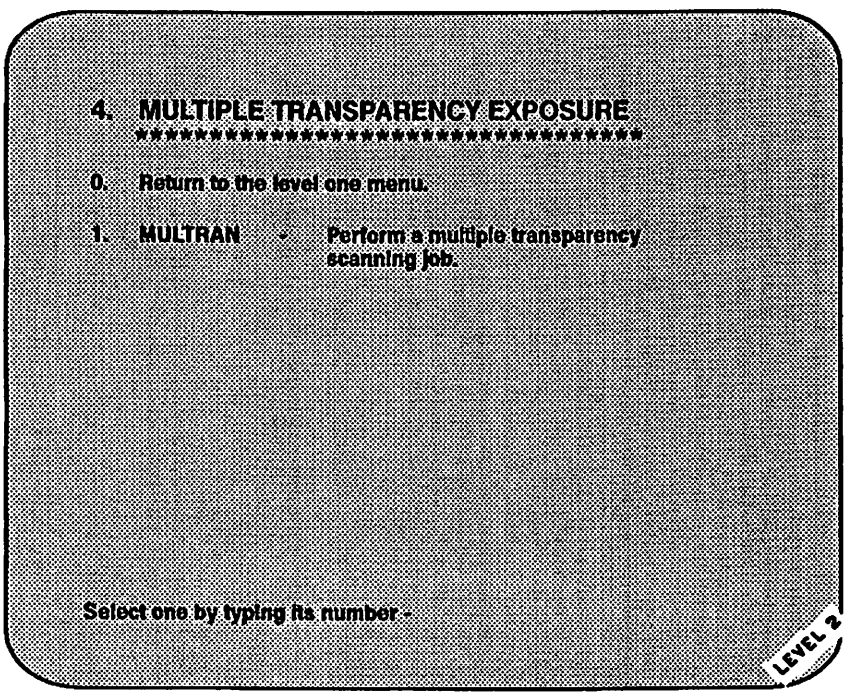
The functions DKBAD and SYBAD are for the use of Crosfield Service Engineers only.

6.2.4 Multiple Transparency Exposure

The following actions must be performed before proceeding with the Multiple Transparency Exposure Menu:

1. Mount the transparencies on the analyse cylinder, using the loading table (see Sections 4.3.2 and 4.3.3).
2. Load the analyse cylinder (see Section 4.3.4).
3. Load a Job disk that has already been initialized on the system in the right-hand floppy-disk drive.

To obtain the Multiple Transparency Exposure Menu from the Scan-to-Film Level One Menu, press **[4]**.


4. MULTIPLE TRANSPARENCY EXPOSURE
****
0. Return to the level one menu.
1. MULTRAN - Perform a multiple transparency scanning job.
Select one by typing its number -
LEVEL 2

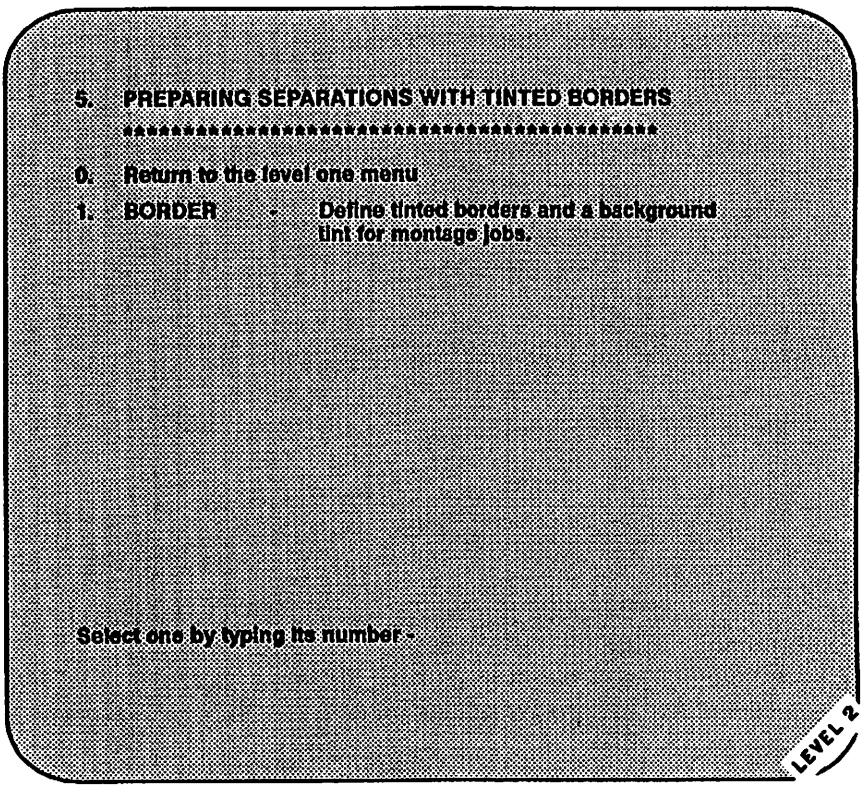
To obtain MULTRAN, select **[1]**.

Note: During this sequence **[Y]** or **[N]** entries or single digit entries do not need a terminator but entries that have more than one character, i.e. file names, lists of job numbers, must be terminated by pressing **[RETURN]**.

The remaining Multran-to-Film operations are fully described in Section 7.6.1.

6.2.5 Magnaplan Tints and Borders

To obtain the **Preparing Separations with Tinted Borders** option from the Scan-to-Film Level 1 Menu, press **[5]**.


5. PREPARING SEPARATIONS WITH TINTED BORDERS
0. Return to the level one menu
1. BORDER - Define tinted borders and a background tint for montage jobs.
Select one by typing its number -
LEVEL 2

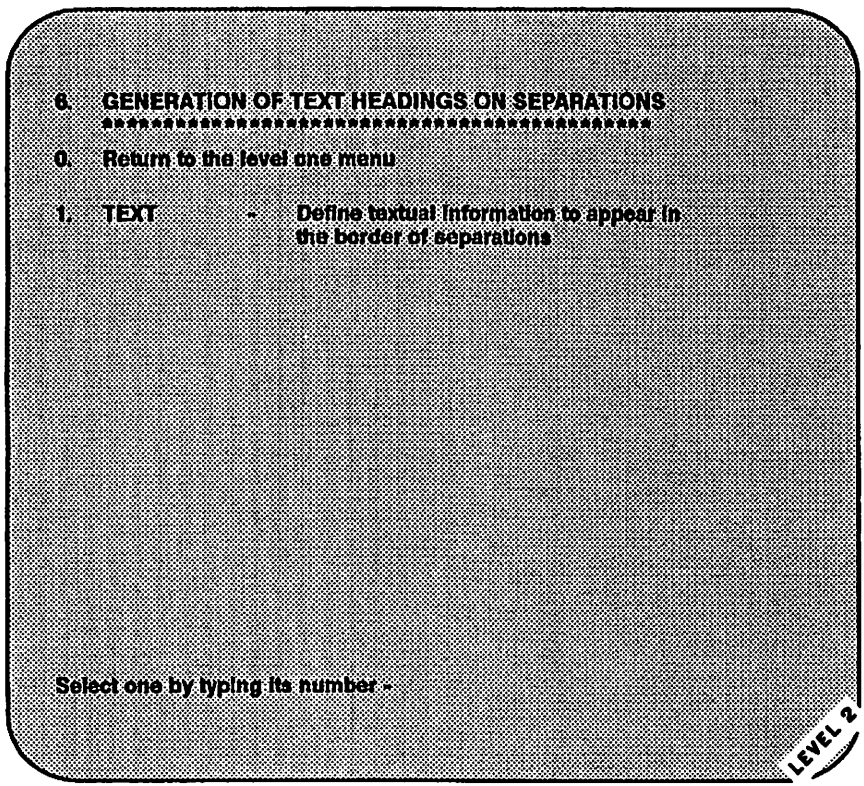
Press: **[1]**

Magnaplan operation is fully described in Section 7.7.

6.2.6 Text Headings Procedures

Note: This sequence can be aborted at any time before **[RETURN]** is pressed. To abort and return to the Level One Menu, press **[ESC]**.

To obtain the **Generation of Text Headings on Separations** Menu from the Scan-to-Film Level One Menu, press **[6]**.


6. GENERATION OF TEXT HEADINGS ON SEPARATIONS
0. Return to the level one menu
1. TEXT - Define textual information to appear in the border of separations
Select one by typing its number -
LEVEL 2

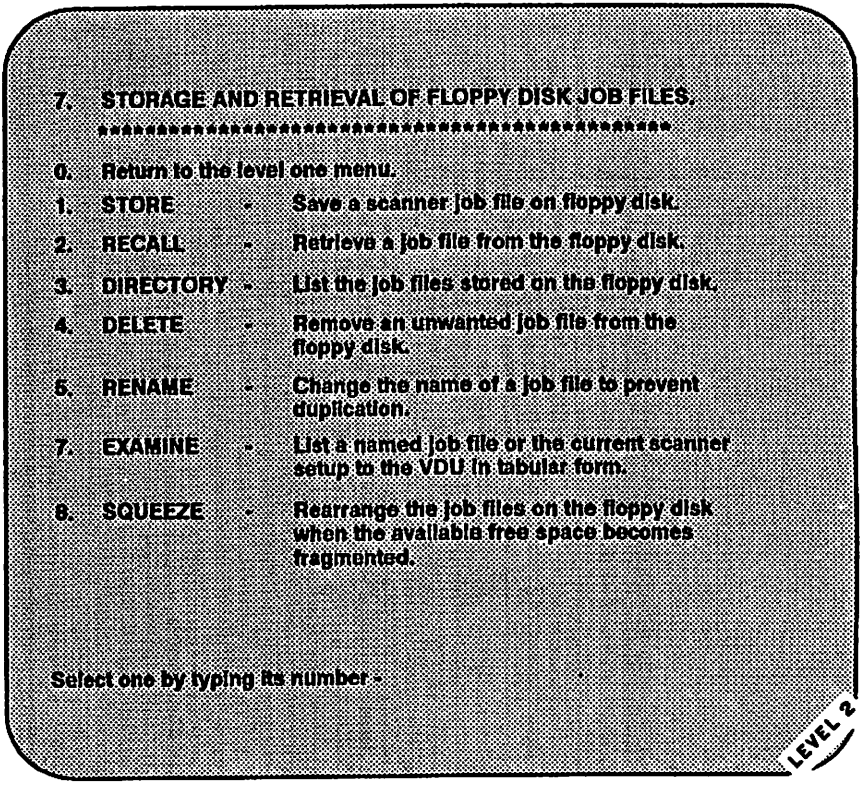
To obtain TEXT, press **[1]**.

The operation of the TEXT function is fully described in Section 7.3.4.

6.2.7 Job Files

Before proceeding with selection of the Job Files Menu, a Job (customer data) floppy disk that has already been initialized on the system must be loaded in the right-hand floppy-disk drive.

To obtain the **Storage and Retrieval of Floppy Disk Job Files** Menu from the Scan-to-Film Level One Menu, press **[7]**.


7. STORAGE AND RETRIEVAL OF FLOPPY DISK JOB FILES.
0. Return to the level one menu.
1. STORE - Save a scanner job file on floppy disk.
2. RECALL - Retrieve a job file from the floppy disk.
3. DIRECTORY - List the job files stored on the floppy disk.
4. DELETE - Remove an unwanted job file from the floppy disk.
5. RENAME - Change the name of a job file to prevent duplication.
7. EXAMINE - List a named job file or the current scanner setup to the VDU in tabular form.
8. SQUEEZE - Rearrange the job files on the floppy disk when the available free space becomes fragmented.
Select one by typing its number -
LEVEL 2

The operation of the Job Files function is fully described in Section 7.8.

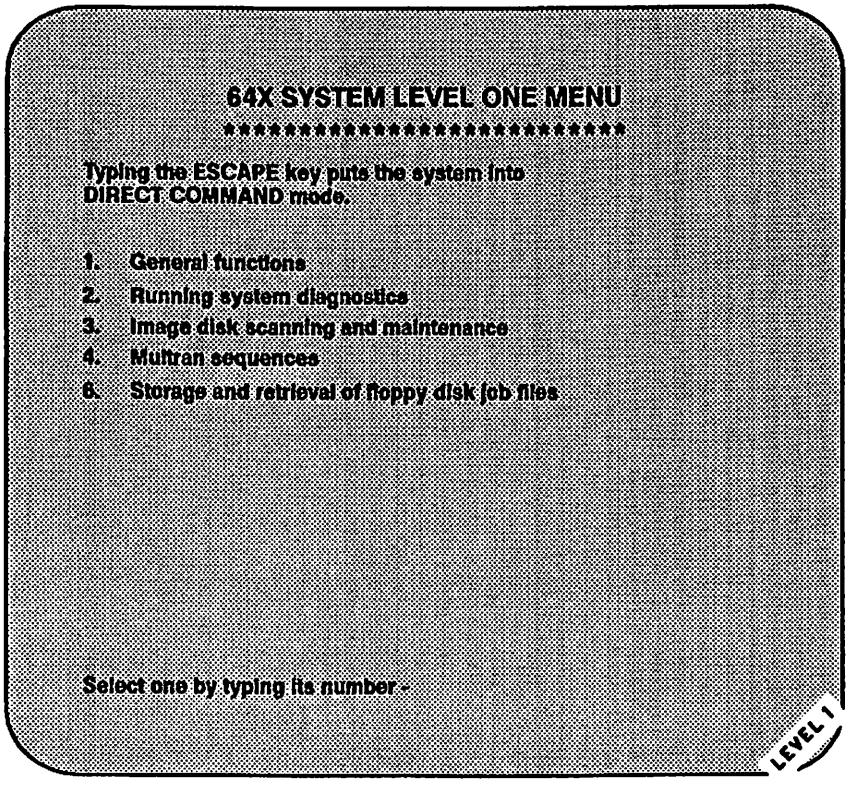
6.3 SCAN-TO-DISK OPERATION

Initially the Scan-to-Disk floppy disk must be loaded and booted (see Section 4.1.6). The procedures available are given in a Level One Menu which is shown on initial booting and which can be returned to from screen prompts. The Level One Menu gives a choice of six procedures. The detail for each is obtained by selecting its menu, called the Level Two Menu. The Level Two Menus lead to specific steps and entries. In some instances a third level menu is given which gives rise to a set of Options.

To return to the Level One Menu at any time, press **[ESC]** twice.

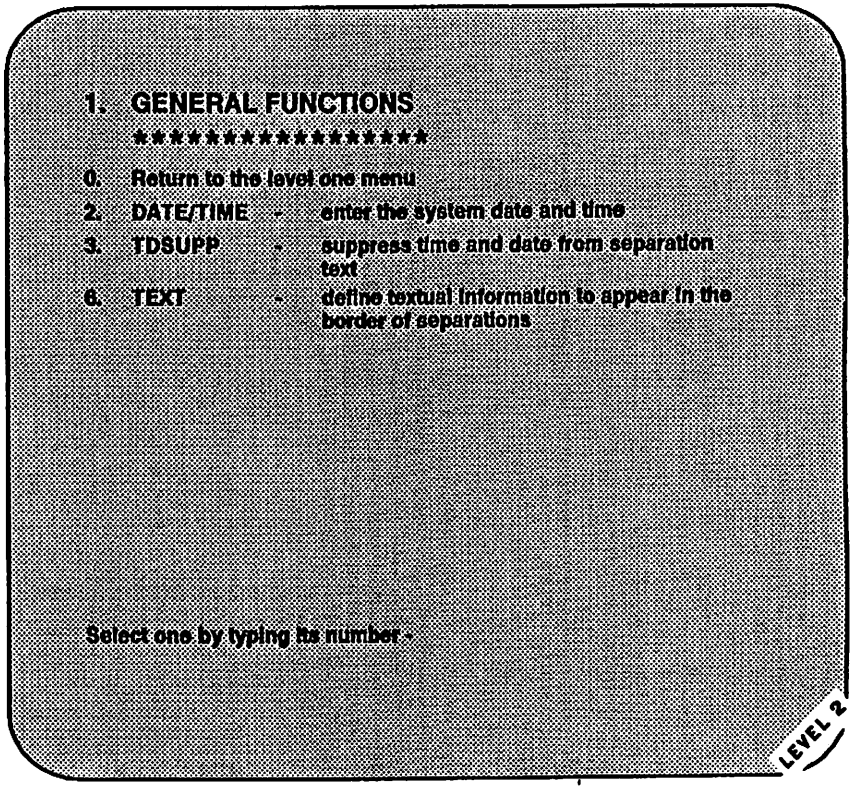
If for any reason during these procedures you are unable to return to the Level One Menu, i.e. you make an illegal entry, you must re-boot (press the BOOT button again and re-enter the date and time to restore the Level One Menu to the VDU screen).

The Level One Scan-to-Disk Menu is:


64X SYSTEM LEVEL ONE MENU
****
Typing the ESCAPE key puts the system into DIRECT COMMAND mode.
1. General functions
2. Running system diagnostics
3. Image disk scanning and maintenance
4. Multran sequences
6. Storage and retrieval of floppy disk job files
Select one by typing its number -
LEVEL 1

6.3.1 General Functions

To obtain the General Functions (Level 2) Option from the Scan-to-Disk Level One Menu, press [1].


1. GENERAL FUNCTIONS
****
0. Return to the level one menu
2. DATE/TIME - enter the system date and time
3. TDSUPP - suppress time and date from separation text
6. TEXT - define textual information to appear in the border of separations
Select one by typing its number -
LEVEL 2

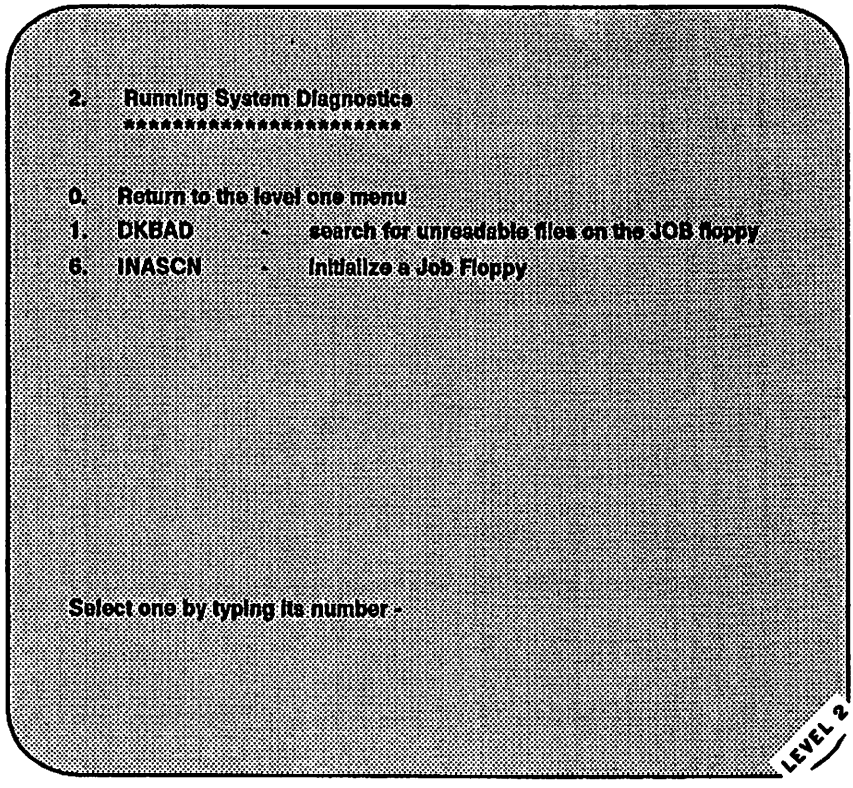
Option 2 - DATE/TIME operates in the same way as the same way as the DATTIM function described in Section 7.3.1.

Option 3 - TDSUPP is described in Section 7.3.2.

Option 6 - TEXT is described in Section 7.3.4.

6.3.2 Running System Diagnostics

Correct function of units in the system is tested automatically by selecting diagnostic programs. No other use of the system is possible when diagnostic programs are in use.

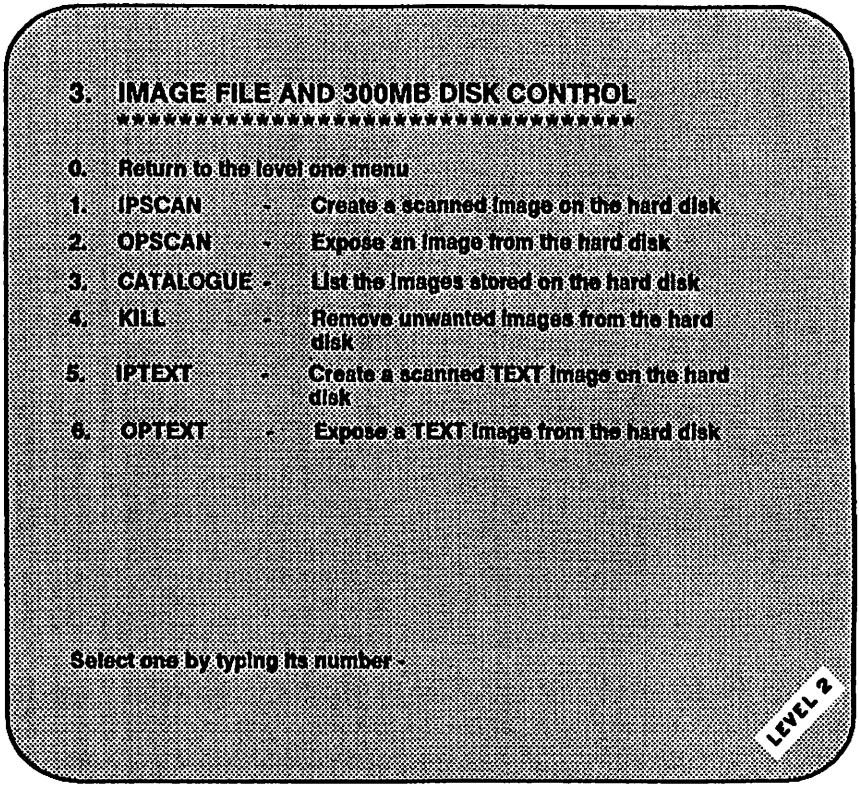

2. Running System Diagnostics
****
0. Return to the level one menu
1. DKBAD - search for unreadable files on the JOB floppy
6. INASCN - Initialize a Job Floppy
Select one by typing its number >
LEVEL 2

Option 1 - DKBAD is for the use of CEL Service Engineers only.

Option 6 - INASCN is described in Section 7.4.2.

6.3.3 Image File and 300 MByte Disk Control

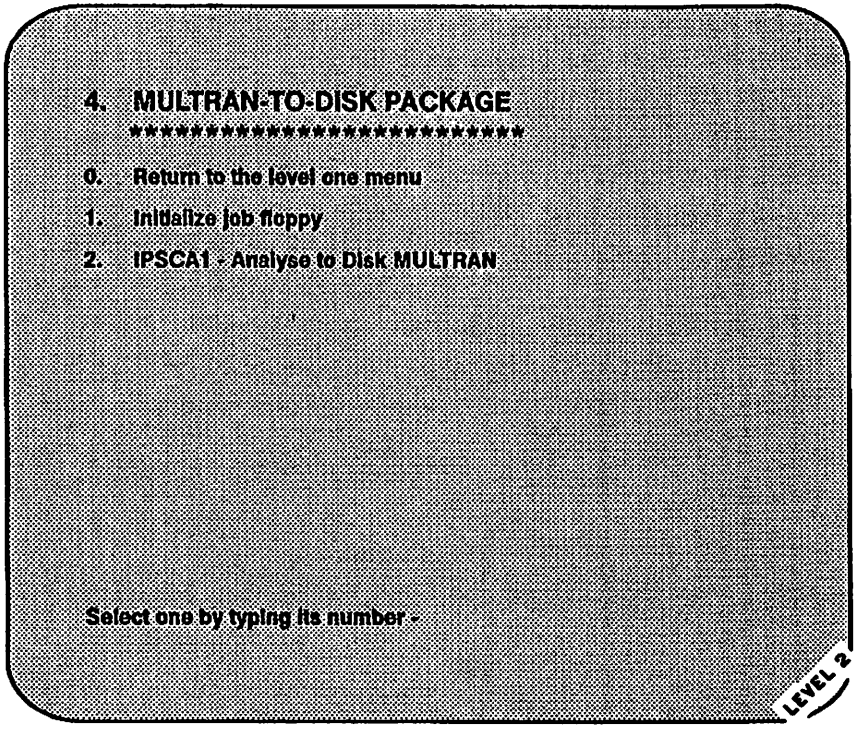
To obtain the Image File and 300 Mbyte Disk Control Menu from the Scan-to-Disk Level One Menu, press [3].


3. IMAGE FILE AND 300MB DISK CONTROL
****
0. Return to the level one menu
1. IPSCAN - Create a scanned image on the hard disk
2. OPSCAN - Expose an image from the hard disk
3. CATALOGUE - List the images stored on the hard disk
4. KILL - Remove unwanted images from the hard disk
5. IPTEXT - Create a scanned TEXT image on the hard disk
6. OPTEXT - Expose a TEXT image from the hard disk
Select one by typing its number -
LEVEL 2

The operation of these functions is described either in Chapter 7 of this manual or in Chapter 3 of the Textran Operator's Manual, 6700-5070:

- Option 1 - IPSCAN, see Section 7.5.1.
- Option 2 - OPSCAN, see Section 7.5.2.
- Option 3 - CATALOGUE, see Section 7.5.3.
- Option 4 - KILL, see Section 7.5.4.
- Option 5 - IPTEXT, see Textran Operator's Manual, Chapter 3.
- Option 6 - OPTEXT, see Textran Operator's Manual, Chapter 3.

6.3.4 Multran to Disk Package


4. MULTRAN-TO-DISK PACKAGE
****
0. Return to the level one menu
1. Initialize job floppy
2. IPSCA1 - Analyse to Disk MULTRAN
Select one by typing its number -
LEVEL 2

Multran job floppies are divided into batch files and job files. A batch has provision for a maximum of 20 job files. Three and a half full batches, or many more partially full batches, can be held on one job floppy disk.

A batch name must exist on floppy disk before a new job can be created. Where a number of batches exist on the same job floppy disk, the system will make a default selection which the operator can override to enter a new batch name. This command allows the creation of a new batch name, or the selection of a batch different to the current one.

When using Multran on the SDT, a job floppy that has been initialized once on the system must be placed in the right-hand floppy-disk drive.

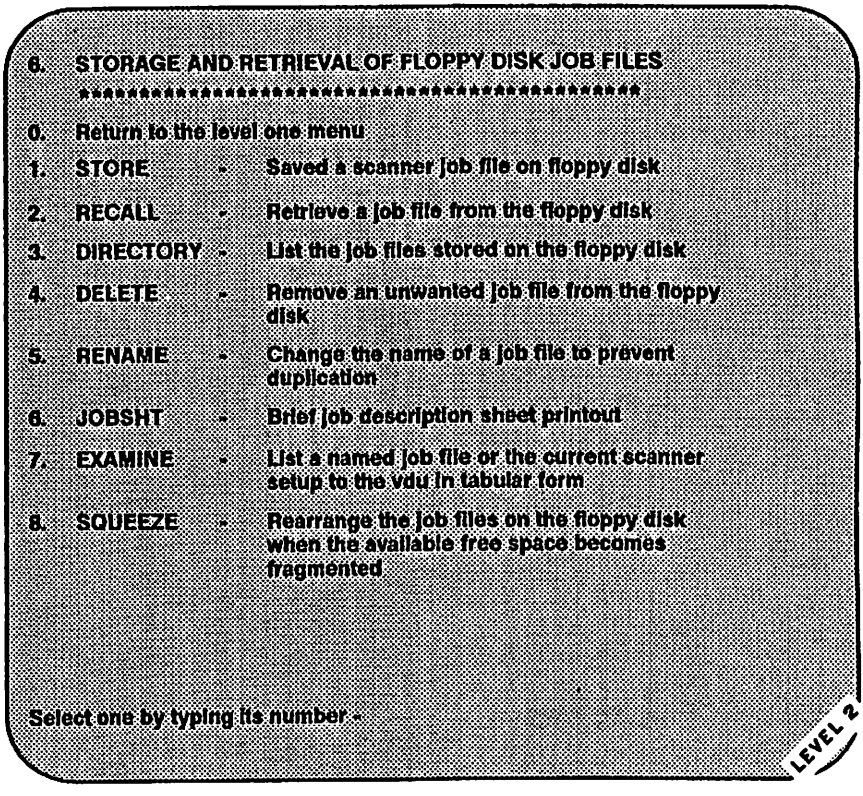
To obtain the Multran Menu from the Scan-to-Disk Level One Menu, press **[4]**.

The remaining Multran-to-Disk operations are fully described in Section 7.6.2.

6.3.5 Job Files

Before selection of the Job Files Menu, load a Job (customer data) floppy disk that has already been initialized on the system in the right-hand floppy-disk drive.

To obtain the **Storage and Retrieval of Floppy Disk Job Files** Menu from the Scan-to-Disk Level One Menu, press **[6]**.


6. STORAGE AND RETRIEVAL OF FLOPPY DISK JOB FILES
****
0. Return to the level one menu
1. STORE - Saved a scanner job file on floppy disk
2. RECALL - Retrieve a job file from the floppy disk
3. DIRECTORY - List the job files stored on the floppy disk
4. DELETE - Remove an unwanted job file from the floppy disk
5. RENAME - Change the name of a job file to prevent duplication
6. JOBSHT - Brief job description sheet printout
7. EXAMINE - List a named job file or the current scanner setup to the vdu in tabular form
8. SQUEEZE - Rearrange the job files on the floppy disk when the available free space becomes fragmented
Select one by typing its number -
LEVEL 2

The operation of the Job Files function is fully described in Section 7.8. Note that the JOBSHT function, described in Section 7.8.6 is not available with this software.

CHAPTER 7

SPECIFIC PROCEDURES - STUDIO HSI AND HSI/64

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CHAPTER 7

SPECIFIC PROCEDURES - STUDIO HSI AND HSI/64

7.1 INTRODUCTION

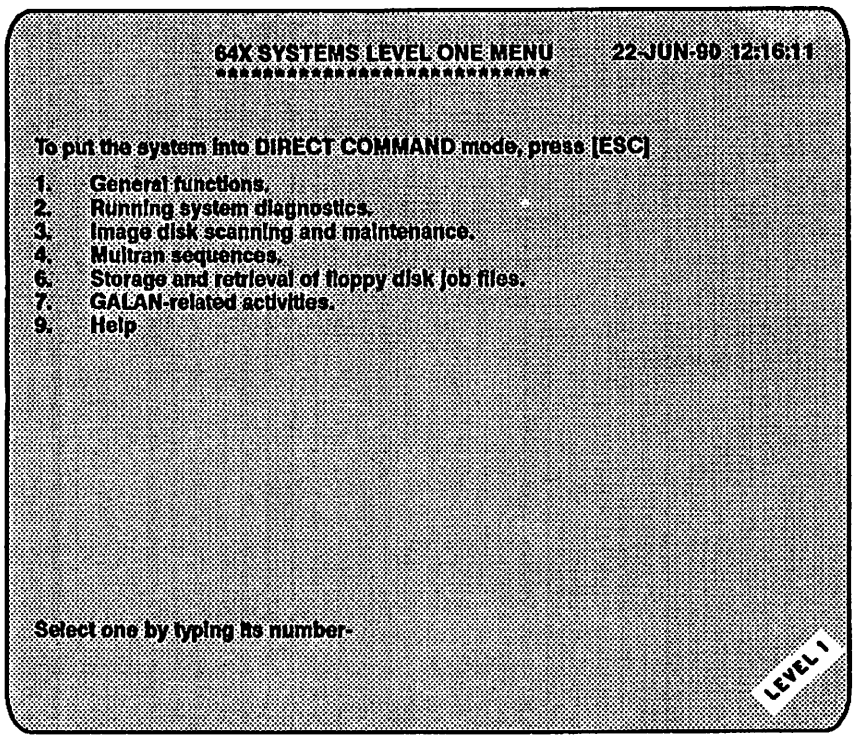
HSI software version 1.02 is held on the Winchester system disk and does not require to be loaded from floppy disk as did earlier versions. Scanning to film, disk and Galan network can be performed from one family of menus.

Each menu is illustrated in this Chapter and operation notes are provided. Galan functions are described in the Galan Operator's Manual, 6700-0210. Textran functions are described in the Textran Operator's Manual, 6500-5070.

The availability of the options described below will depend on the configuration of the system which you are using. In most cases options which are inappropriate for your configuration will not be displayed on the screen menus.

7.2 64X SYSTEMS LEVEL ONE MENU

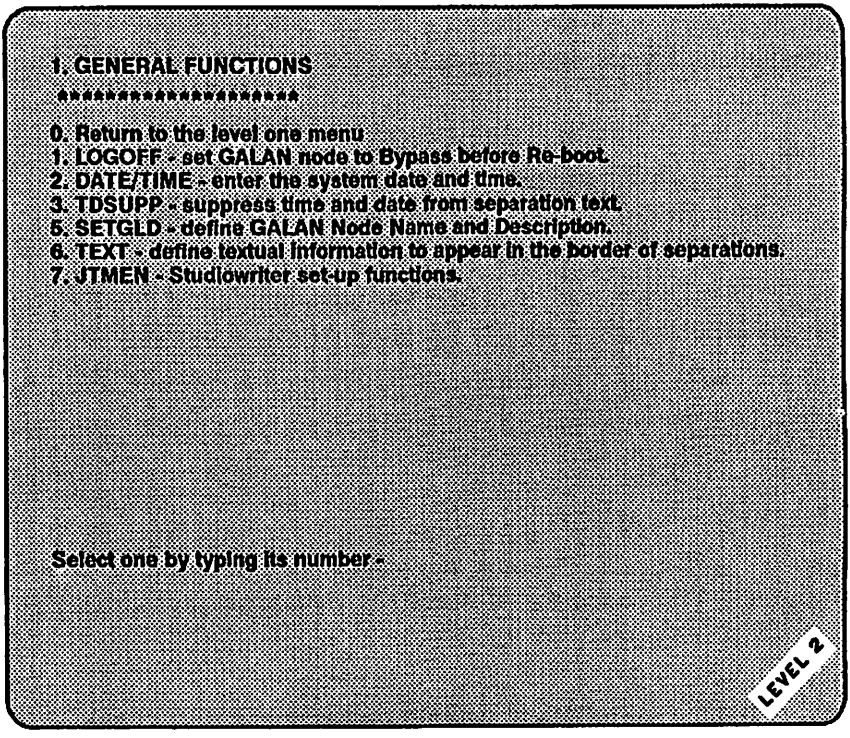
After the boot sequence has been completed the Level One Menu appears automatically:


64X SYSTEMS LEVEL ONE MENU 22-JUN-90 12:16:11
To put the system into DIRECT COMMAND mode, press [ESC]
1. General functions.
2. Running system diagnostics.
3. Image disk scanning and maintenance.
4. Multran sequences.
6. Storage and retrieval of floppy disk job files.
7. GALAN-related activities.
9. Help
Select one by typing its number-
LEVEL 1

Each of these options is described in the following sections.

7.3 GENERAL FUNCTIONS

To obtain the **General Function** option from the Level One Menu, press **[1]**.


1. GENERAL FUNCTIONS
0. Return to the level one menu
1. LOGOFF - set GALAN node to Bypass before Re-boot.
2. DATE/TIME - enter the system date and time.
3. TDSUPP - suppress time and date from separation text.
5. SETGLD - define GALAN Node Name and Description.
6. TEXT - define textual information to appear in the border of separations.
7. JTMEN - Studiowriter set-up functions.
Select one by typing its number -
LEVEL 2

Option 1 - LOGOFF is a facility for CEL service engineers, do not select.

Option 7 - JTMEN is not used on Magnascan equipment.

7.3.1 DATE/TIME - Changing The Time And Date

To change the system time or date, select Option 2 - DATE/TIME.

Insert the required date and time in the form DD-MM-YY and HH-MM-SS.

7.3.2 TDSUPP - Suppressing The Time And Date Exposure

To prevent the current date and time being exposed at the bottom of all separations, select Option 3 - TDSUPP, and respond **[Y] [RETURN]** to the prompt.

7.3.3 SETGLD - Changing The Galan Node Description

To change the Galan Node description select Option 5 - SETGLD.

CAUTION

The Node Name, which is an ID number, MUST only be changed by CEL Engineers. An unauthorized change will cause major ring failures.

A Node Description may be changed and the new description will be automatically communicated to the other nodes on the ring.

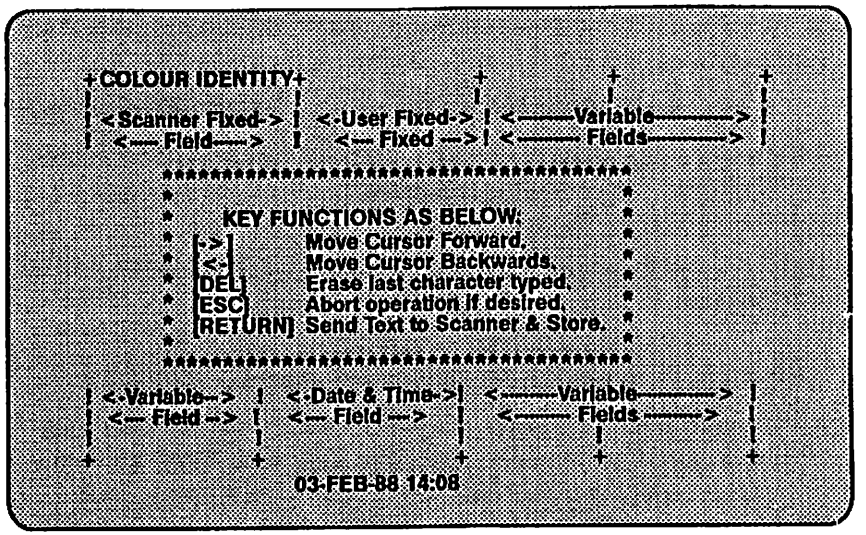
```
GALAN NODE DESCRIPTION UTILITY
Galan Node Number - ID NUMBER
Current Settings are:
Description - CURRENT DESCRIPTION
Do you wish to change these [Y, N]?
```

Press **[Y]** and type in the new description (up to a maximum of 54 characters) at the bottom of the screen, then press **[RETURN]**. The Level Two Menu re-appears.

7.3.4 TEXT - Specifying Text On Film Borders

To specify border text, select Option 6 - TEXT.

The following text heading layout will be displayed. The words **COLOUR IDENTITY** will appear on the top line (first field). The current date and time will appear on the bottom line (second field).



1. Type the required text at the VDU keyboard. The permissible characters are listed as follows: A to Z 0 to 9 [ ] - SP(space) ! " # $ % ' ( ) *, - . / & : ; = . The cursor can be made to jump forwards or backwards from field to field. It moves to the first character position in the operator-text field, jumping over the scanner text and user fix fields. Operator text may be entered in the user fix field if required, by moving the cursor back to the start of this field.

   The key functions are shown in the centre of the text layout.

2. To change the system date and time or suppress the current date and time from the separation text, Press **[ESC]** twice to return to the Level One Menu, then select Option 1 to obtain **General Functions**.

   Re-enter the system date and time or suppress the current date and time for the text as required and the Level One Menu will reappear.

3. To send the completed text to the expose unit, press **[RETURN]**.

   Text Transfer to Scanner Complete!!!

   is followed by:

   Transfer of Text to Floppy Disk Completed

   The Level One Menu will re-appear.

4. If the scanner is not in communication with the system computer (data terminal), the VDU will display:

```
SCANNER NOT RESPONDING
```

This may be due to the scanner having been switched off or a cable disconnected. If the fault is not known or is not easily corrected, call the Crosfield Service Engineer.

If the scanner is busy with an analyse/expose operation, the VDU will display:

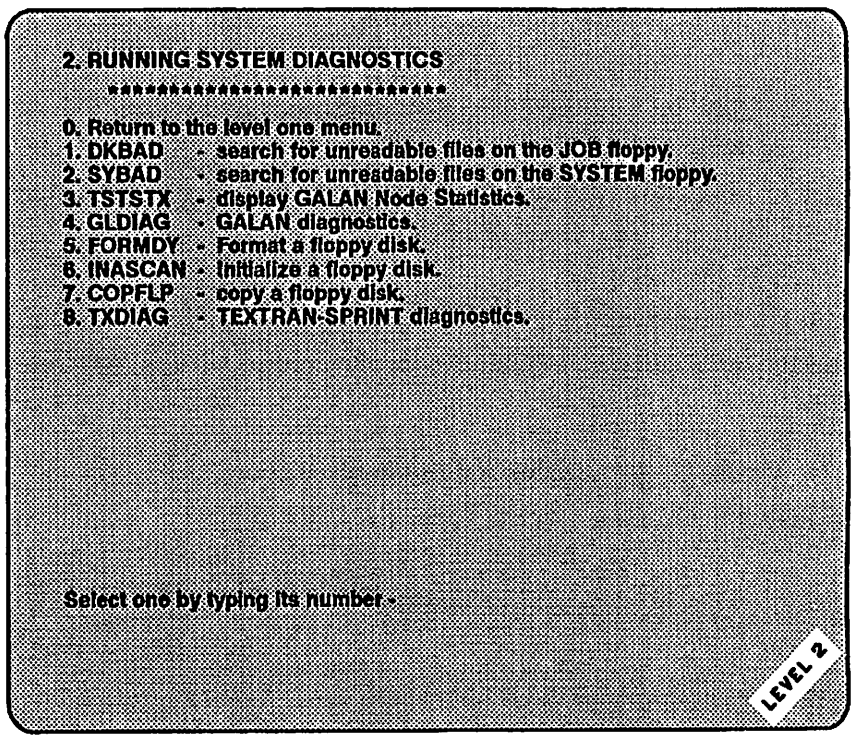
```
SCANNER EXPOSING - Not Ready to Receive Text!!!
Wait for Current Operation to Finish, Then Press Spacebar
```

Note: To avoid the risk of corrupting picture information you should not attempt to transfer text from the data terminal to the scanner while the analyse/expose operation is in progress.

When the current scanner operation is finished, press the space-bar and the text heading layout will be displayed.

7.4 RUNNING SYSTEM DIAGNOSTICS

To obtain System Diagnostics, select Option 2 from the Level One Menu.


2. RUNNING SYSTEM DIAGNOSTICS
****
0. Return to the level one menu.
1. DKBAD - search for unreadable files on the JOB floppy.
2. SYBAD - search for unreadable files on the SYSTEM floppy.
3. TSTSTX - display GALAN Node Statistics.
4. GLDIAG - GALAN diagnostics.
5. FORMDY - Format a floppy disk.
6. INASCAN - Initialize a floppy disk.
7. COPFLP - copy a floppy disk.
8. TXDIAG - TEXTRAN-SPRINT diagnostics.
Select one by typing its number :-
LEVEL 2

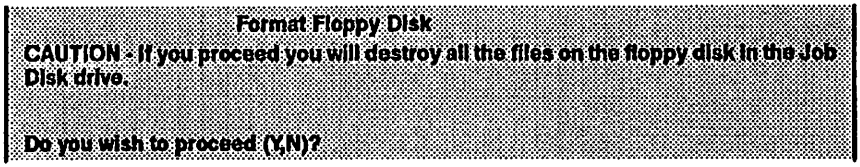
Correct function of units in the system is tested automatically by selecting diagnostic programs. No other use of the system is possible when diagnostic programs are in use.

Options 1 (DKBAD), 2 (SYBAD), 3 (TSTSTX), 4 (GLDIAG) and 8 (TXDIAG) are used by CEL service engineers only, do not select.

Option 7 (COPFLP) does not operate on this software version.

7.4.1 FORMDY - Formatting A Floppy Disk

To format a floppy disk, select Option 5 - FORMDY.


Format Floppy Disk
CAUTION - If you proceed you will destroy all the files on the floppy disk in the Job Disk drive.
Do you wish to proceed (Y,N)?

CAUTION

All files held on the floppy disk will be lost if a format is performed.

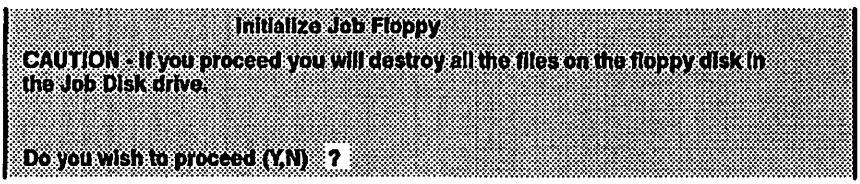
To leave FORMDY without formatting the disk, press **[N]**. The display returns to the Level One Menu.

Press **[Y]** to proceed.

When the formatting is complete the display returns to the Level One Menu.

7.4.2 INASCN - Initializing A Job Floppy

To initialize a Job floppy, select Option 6 - INASCN.


Initialize Job Floppy
CAUTION - If you proceed you will destroy all the files on the floppy disk in the Job Disk drive.
Do you wish to proceed (Y,N) ?

CAUTION

All files held on the floppy disk will be lost if an initialization is performed.

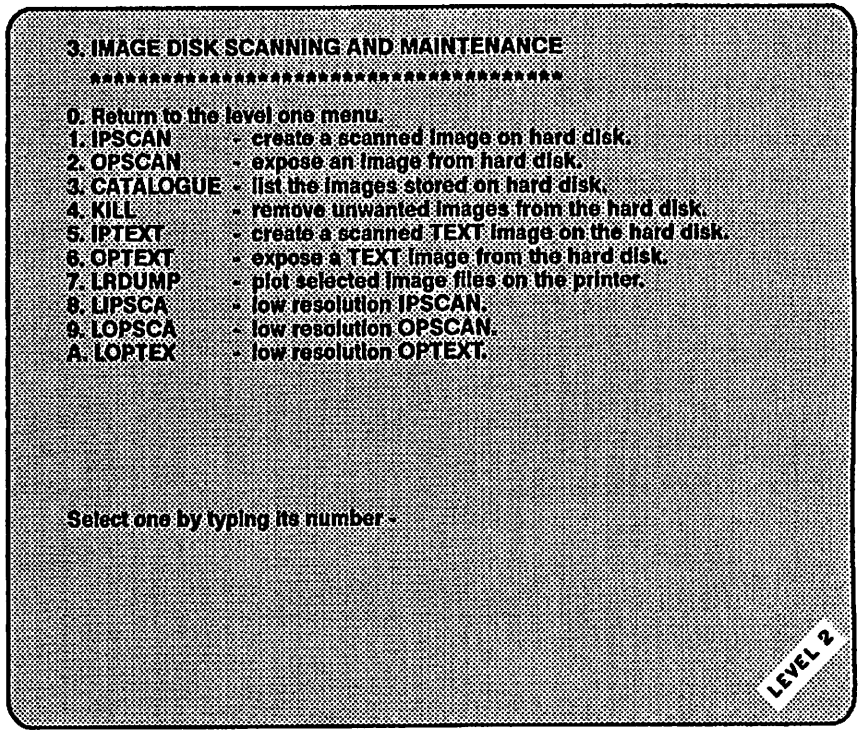
To leave INASCN without initializing the disk, press **[N]**. The display returns to the Level One Menu.

Press **[Y]** to proceed.

When the initialization is complete the display returns to the Level One Menu.

7.5 IMAGE DISK SCANNING AND MAINTENANCE

To obtain the Image Disk Scanning and Maintenance Menu, select Option 3 from the Level One Menu.


3. IMAGE DISK SCANNING AND MAINTENANCE
****
0. Return to the level one menu.
1. IPSCAN - create a scanned image on hard disk.
2. OPSCAN - expose an image from hard disk.
3. CATALOGUE - list the images stored on hard disk.
4. KILL - remove unwanted images from the hard disk.
5. IPTEXT - create a scanned TEXT image on the hard disk.
6. OPTEXT - expose a TEXT image from the hard disk.
7. LRDUMP - plot selected image files on the printer.
8. LIPSCA - low resolution IPSCAN.
9. LOPSCA - low resolution OPSCAN.
A. LOPTEX - low resolution OPTEXT.
Select one by typing its number -
LEVEL 2

To output a graphics image, use Option 2 - OPSCAN. To output a graphics and text image, use Option 6 - OPTEXT.

7.5.1 IPSCAN - Scanning To Disk

The Ipscan facility stores high resolution scanner image data on disk. These images provide an input to a Studio page planning system. The optional compaction system creates a low resolution studio view file at scan time. The process is illustrated in Figure 7.1.

The job to be scanned should be set up at the scanner keyboard before entering **IPSCAN.**

To Scan-to-disk select Option 1 - IPSCAN.

```
GRAPHICS INPUT SELECTED

DO YOU REQUIRE IMAGE TO BE COMPACTED [Y,N(ESC)]?
```

If position co-ordinates have not been entered an error message is displayed.

```
GRAPHICS INPUT SELECTED

NO VALID PICTURE COORDINATES - Hit SPACE to continue
```

1. To compact the image, press **[Y]**

   Whether you press **[Y]** or **[N]** the VDU will list the disk drive units in the system and state which units are on-line.

```
                    GRAPHICS INPUT SELECTED
LUN DISK  STATUS    DESCRIPTION BAD CYLS SPACES  LARGEST SPACE
4   DP0   PACK N    NNN         0        1       256 CYL
5   DP2   NOT CONNECTED
6   DP2   NOT CONNECTED
7   DP3   NOT CONNECTED

Which PACK number do you wish to access? -
```

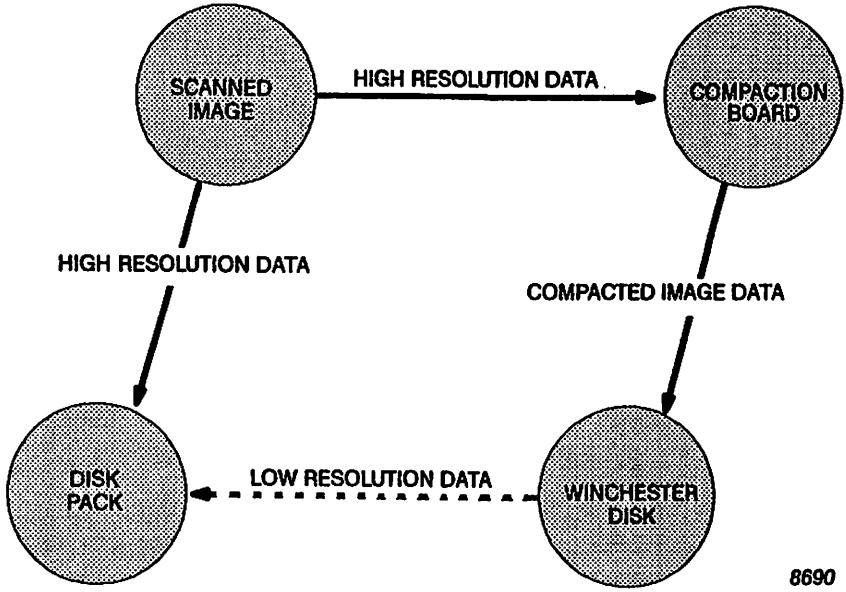


Figure 7.1 Compaction Process

2. Enter the pack number of the disk drive required, and press **[RETURN]**.

```
GRAPHICS INPUT SELECTED
PK/IM ATTRIBS RESOL COLS CYLINDRS SIZE (mm) DATE TIME NOTES
                V H                HOR VER

Enter New Image Number ['0' Exits Program, 'D' changes disk]?
```

3. If there are any bad cylinders on the disk pack, the VDU will display:

```
GRAPHICS INPUT SELECTED
Pack Identification:-
  Pack Number:-

The Following Cylinders on the Selected Pack are Unusable
```

and a list of the bad cylinders will appear. If there are no bad cylinders the VDU will display:

```
No Bad Cylinders on this Image Disk
No Bad Cylinders on the Winchester
```

4. A list of image files on the disk pack will appear on the VDU sorted into image number order. If there are more than 20 lines of file information available, the VDU display will ask:

```
GRAPHICS INPUT SELECTED
PK/IM ATTRIBS RESOL COLS CYLINDRS SIZE (mm) DATE TIME NOTES
                V H                HOR VER

Display more entries [Y,N]?
```

To see the remainder of the files, press **[Y]**.

Whether you press **[Y]** or **[N]** the VDU will always ask you to:

```
Enter New Image Number ['0' Exits Program, 'D' Changes Disk] ?
```

If you type a number that is already in the list of files and press **[RETURN]**, the VDU will display:

```
Duplicate Image Number - Try Again.
```

5. Enter the new image number and press **[RETURN]**

```
Image Description [0-20 Characters] -
```

Type a description of up to 20 characters and press **[RETURN]**

The display will ask:

```
Do You Require a Plan Film [Y,N] ?
```

For a plan film, press **[Y]**

```
PLAN FILM REQUESTED
1 Free Image Spaces Found
Largest Is ..... Cylinders
No Space Large Enough For Image
Press Space to Continue
```

6. The VDU display will ask:

```
Do You Require a Plan Film [Y,N] ?
```

Press **[N]** if you do not and the VDU will display:

```
1 Free Image Spaces Found
Largest Is ..... Cylinders

Press [EXPOSE] on Analyse Unit When Ready
```

Loading Film During Analyse-to-Disk Scan: You can load a new sheet of film on the expose cylinder, using the **[LOAD FILM]** button as usual, while the analyse cylinder is going at full speed and performing an analyse-to-disk scan.

Alternatively, press **[Y]** if you do require a Plan Film and the VDU will display:

```
Plan Film Requested
```

followed by:

```
Press [EXPOSE] on Expose Unit and Analyse Unit When Ready
```

Load a film on the expose cylinder. Close the lid and press **[EXPOSE]** on the expose unit.

Close the lid of the analyse unit and press **[EXPOSE].**

The VDU will display:

```
Percent Remaining
Performing Main Scan
```

and scanning will commence.

7. While the scanning is in progress, the VDU display will show the percentage of the original which remains to be scanned, (from 100% to 0%).

   When the scanning operation is finished, the transfer of the compacted image will commence and the VDU display will show the percentage of the compacted image which remains to be transferred from the Winchester drive to the disk pack (from 100% to 0%).

   When the transfer of the compacted image is finished the VDU will display:

```
Normal Exit -                    Image Complete
```

   The Level One Menu will re-appear.

7.5.2 OPSCAN - Exposing From Disk

To expose a film from disk, select Option 2 - OPSCAN.

```
      GRAPHICS OUTPUT SELECTED                    11-JUN-91 9:30:19

LUN  DISK  STATUS    DESCRIPTION  BAD CYLS  SPACES  LARGEST SPACE

4    DP0   PACK 31   JS1-E2       0         1       142 CYLINDERS
5    DP1   PACK 29   JS2-F9       0         9       97 CYLINDERS
6    DP2   PACK 17   JS1-F1       0         7       64 CYLINDERS
7    DP3   PACK 19   JS2-E1       0         4       80 CYLINDERS

Which PACK number do you wish to access? - XX
```

1. Enter the Pack number (from the list in the **STATUS** column) in the form x or XX and press **[RETURN]**. The screen changes to display information relating to images on the selected disk:

```
      GRAPHICS OUTPUT SELECTED                    11-JUN-91 9:30:19

PK/IM  ATTRIBS  RESOL  COLS  CYLNDRS  SIZE mm  DATE       TIME   NOTES
       PROSP    300DI  CMYK  650-673  1X24     22APR88    12:05  JOB067-BUSH
       PROSP    300DI  CMYK  130-153  239X49   22APR88    13:10  JOB123-SKI

Which image required [To change pack, type [D]. To exit, enter [0].]?
```

2. Enter the Image file number for the Graphics, i.e. 07, and press **[RETURN]**.

```
Do you want a Laterally Reversed Image [Y,N]?
```

3. To obtain right-reading output, press **[N]**.

   To obtain lateral reversed output, press **[Y]**.

   If lateral reversal is selected the display:

   ```
   Image will be Laterally Reversed.
   ```

   will appear for a few seconds.

   If there is sufficient space on the film for all four separations the following display will appear. If not the system will proceed to Step 5.

   ```
   Output four separations automatically [Y,N,ESC]?_
   ```

4. To output the separations singly, press **[N]** and follow on with the next step.

   To output the separations automatically, press **[Y]** and proceed to Step 6.

   For non-automatic exposure, allowing a choice for the first colour to be exposed from the fixed-cycle sequence, CMYK, proceed with the next step.

5. ```
   Choose first colour to expose [CMY or K] -
   ```

   Enter the first colour to be exposed, **C, M, Y** or **K** and press **RETURN.**

   ```
   Start expose remotely [Y or ESC]? -
   ```

   Press **[Y]** to reset the expose head to the beginning of the film.

   Press **[N]** to continue from the end of the previous scan.

   On a stand-alone units the sequence continues with the message:

   ```
   Press [EXPOSE] on Expose Unit(s) to start scan.
   ```

   On other systems the alternative message appears:

   ```
   Start expose remotely [Y or ESC]?_
   ```

6. Press **[Y]** on the keyboard or **EXPOSE** on the scanner according to the message.

   The scan sequence starts.

   ```
   xx PERCENT REMAINING.
   Performing main scan
   Currently exposing x separation(s)
   ```
   ```

If single-scan operation was selected the following message will appear after the first scan has been completed. If not, the system will proceed to Step 9.

```
Do you want to expose further separations in the set [Y,N]? -
```

7. To expose the next separation, press [Y].
8.
```
Scanning Completed.
```

The Level One Menu will then be displayed.

7.5.3 CATALOGUE - Listing Disk Images

To list images currently stored on the hard disks select Option 3 - CATALOGUE.

```
                    CATALOGUE SELECTED

LUN  DISK  STATUS  DESCRIPTION  BAD CYLS  SPACES  LARGEST SPACE

Which PACK number do you wish to access? -
```

The VDU will list the disk drive units in the system and state which units are on-line.

1. Enter the number of the pack required and press [RETURN].

```
                    CATALOGUE SELECTED

DISPLAY DIRECTORY SORTED:
0 - By Image Number.
1 - Alphabetically, according to the Notepad Field
2 - Into scanned and assembled blocks.
3 - In cylinder order across the disk.
4 - In order of creation date.
or
F - Display Pack Number, Volume I.D. and Bad Cylinders.
D - Select a different drive.
P - Select or deselect hard copy printout.
Select one by typing its number. To exit, press [ESC]
Hard copy NOT selected.                                  LEVEL 3
```

Note: To exit, press [ESC] twice.

If there are any bad cylinders on the disk pack the VDU will display:

```
The Following Cylinders are Unusable:
```

and a list of the bad cylinders will appear. If there are no bad cylinders the VDU will display:

```
No Bad Cylinders on this Pack
```

2. From the display directory select the number of the required sorting method.

   The VDU will then display a list of image files, sorted as required. If there are more than 20 lines of file information available, the VDU display will ask:

```
Display More Entries [Y,N]?
```

   To see the remainder of the files, press **[Y]**

   Whether you press **Y** or **N** the VDU will always display:

```
Press [Spacebar] to continue
```

   The display directory returns.

   To display the Pack identification and number, and unusable cylinders, press **[F]**

```
                    CATALOGUE SELECTED

Pack Identification:
  Pack Number:

The following cylinders on the selected pack are unusable:


Press [Spacebar] to continue -
```

   To select a different drive, press **[D]**

```
                    CATALOGUE SELECTED

LUN  DISK  STATUS  DESCRIPTION  BAD CYLS  SPACES  LARGEST SPACE

Which PACK number do you wish to access? -
```

   To print out the files currently displayed on the screen, press **[P]**. Press **[P]** again to deselect the hard copy print-out.

3. To abort the sequence and return to the Level One Menu, Press **[ESC]** twice.

7.5.4 KILL - Deleting Images From Disk

To delete images from a hard disk select Option 4 - KILL.

```
                    IMAGE DELETION SELECTED

LUN  DISK  STATUS  DESCRIPTION  BAD CYLS  SPACES  LARGEST SPACE

Which PACK number do you wish to access? -
```

The VDU will list the disk drive units in the system and state which units are on-line.

Enter the number of the pack required and press **[RETURN]**.

```
                    IMAGE DELETION SELECTED

PK/IM  ATTRIBS  RESOL -V,H-  COLS  CYLNDRS  SIZE (mm) -HOR-VER-  DATE  TIME  NOTES

Which Image(s) to Kill
To change pack, type [D]. To exit, press [ESC].
1, 3, 6 kills files 1, 3 & 6; 1-4 kills files 1 through 4; ALL kills all files
```

Note: To exit, press **[ESC]** twice.

Enter the number of the image to be deleted, or enter **ALL**, and press **[RETURN]**.

```
File(s) .... marked for delete
Any more to delete [Y, N]?
```

To enter further files for deletion, press **[Y]** or **[N]** to continue.

```
Delete the specified Image(s) - Are you really sure [Y,N]?
```

CAUTION

Responding [Y] instantly deletes the files.

To return to the Level One Menu without deleting the files, press **[N]**.

7.5.5 IPTEXT - Scanning A Text Image To Disk

To scan a text or graphics-with-text image to disk, select Option 5 - IPTEXT.

The operating instructions for this function are fully described in Chapter 3 of the Textran Operator's Manual, 6500-5070.

7.5.6 OPTEXT - Exposing from Disk

To output a text or graphics-with-text image to film, select Option 6 - OPTEXT.

The operating instructions for this function are fully described in Chapter 3 of the Textran Operator's Manual, 6500-5070.

7.5.7 LRDUMP - Outputting A Low Resolution Image To The Printer

An image may be sent to the Control Terminal dot-matrix printer to produce a low resolution printout. Select Option 7 - LRDUMP.

```
        LR DUMP SELECTED                    19-FEB-89 9:30:19

LUN  DISK  STATUS     DESCRIPTION   BAD CYLS   SPACES   LARGEST SPACE
4    DP0   PACK 31    JS1-E2        0          1        142 CYLINDER
5    DP1   PACK 29    JS2-F9        0          9        97 CYLINDER
6    DP2   PACK 17    JS1-F1        0          7        64 CYLINDER
7    DP3   PACK 19    JS2-E1        0          4        80 CYLINDER

Which PACK number do you wish to access? -
```

Enter the required pack number and press **[RETURN]**.

```
        LR DUMP SELECTED                    19-FEB-89 9:30:19

PK/IM  ATTRIBS  RESOL :V,H:  COLS  CYLNDRS  SIZE mm :HOR-VER:  DATE      TIME   NOTES
3107   PROSP    300 12       CMYK  650-673   1X24              22APR88   12:05  JOB067-BUSH
3108   PROSP    300 12       CMYK  130-253   239X59            22APR88   13:10  JOB123-SKI

Which image is required?
```

Ensure that the matrix printer is ready.

Enter the required image number and press **[RETURN]**.

```
Correct Image Selection [Y,N]? -
```

If you confirm, **[Y]**.

```
Do you want Threshold checking [Y,N]? -
```

If you confirm, **[Y]**.

```
Low-Resolution Image dump in progress . . .
```

```
Dump of Low-Resolution Image completed.
```

Dump another image [Y,N]? -

The system may take some minutes to complete the reproduction. A dump can be aborted by pressing **[ESC]**.

7.5.8 LIPSCA - Scanning A Low Resolution Image To Disk

To input a low-resolution image (8 pixels/mm) to film, select Option 8 - LIPSCA.

The program runs in the same way as IPSCAN, see Section 7.5.1.

7.5.9 LOPSCA - Exposing A Low Resolution Image On Film

To output a low-resolution graphics-only image to film, select Option 9 - LOPSCA.

The program runs in the same way as OPSCAN, see Section 7.5.2.

7.5.10 LOPTEX - Scanning A Low Resolution Image To Film

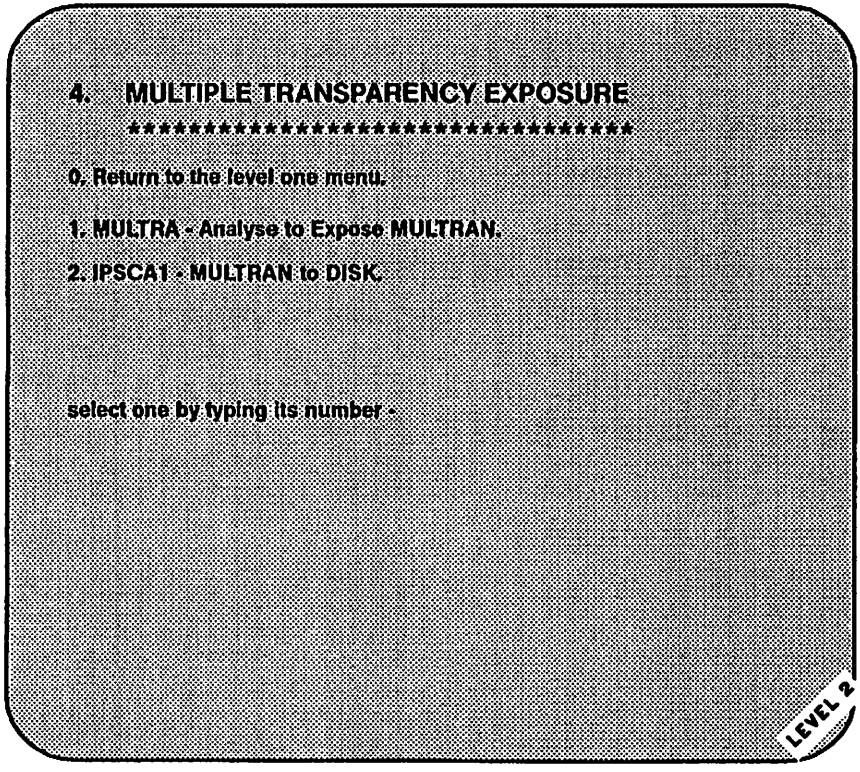
To output low-resolution graphics or text images to film, select Option A - LOPTEX.

The program runs in the same way as the OPTEXT option, described in the Textran Operator's Manual, 6500-5070.

7.6 MULTRAN SEQUENCES

To expose a sequence of images to film or disk:

1. Mount the transparencies on the analyse cylinder, using the loading table (see Sections 4.3.2 and 4.3.3).
2. Load the analyse cylinder (see Section 4.3.4).
3. Load an initialized Job disk in the floppy-disk drive (left-hand drive on dual drive versions).
4. Select Option 4 from the Level One menu.


4. MULTIPLE TRANSPARENCY EXPOSURE
****
0. Return to the level one menu.
1. MULTRA - Analyse to Expose MULTRAN.
2. IPSCA1 - MULTRAN to DISK.
select one by typing its number -
LEVEL 2

7.6.1 MULTRA - Multran Expose To Film

Select Option 1 - MULTRA from the Multran Sequences menu.

Note: During this sequence [Y] or [N] entries or single digit entries do not need a terminator but entries that have more than one

character, i.e. file names, lists of job numbers, must be terminated by pressing **[RETURN]**.

The procedure is given in the MULTRAN flow diagrams, Figure 7.2(a-d).

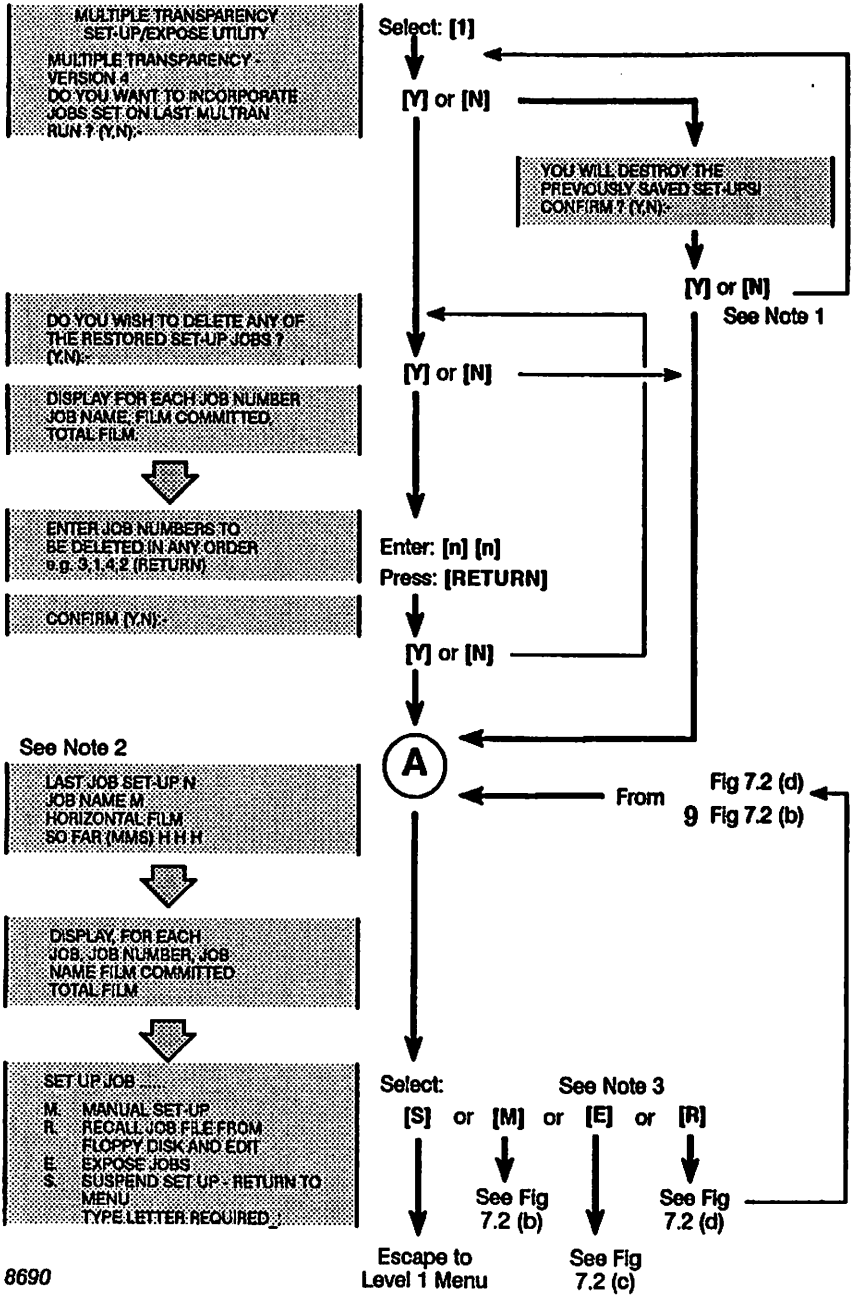

MULTIPLE TRANSPARENCY SET-UP/EXPOSE UTILITY
MULTIPLE TRANSPARENCY - VERSION 4
DO YOU WANT TO INCORPORATE JOBS SET ON LAST MULTRAN RUN ? (Y,N):-
Select: [1]
[Y] or [N]
YOU WILL DESTROY THE PREVIOUSLY SAVED SET-UPS! CONFIRM ? (Y,N):-
[Y] or [N]
See Note 1
DO YOU WISH TO DELETE ANY OF THE RESTORED SET-UP JOBS ? (Y,N):-
[Y] or [N]
DISPLAY FOR EACH JOB NUMBER JOB NAME, FILM COMMITTED, TOTAL FILM
ENTER JOB NUMBERS TO BE DELETED IN ANY ORDER e.g. 3,1,4,2 (RETURN)
Enter: [n] [n]
Press: [RETURN]
CONFIRM (Y,N):-
[Y] or [N]
See Note 2
A
From
Fig 7.2 (d)
9 Fig 7.2 (b)
LAST JOB SET-UP N
JOB NAME M
HORIZONTAL FILM
SO FAR (MMS) H H H
DISPLAY, FOR EACH JOB, JOB NUMBER, JOB NAME FILM COMMITTED TOTAL FILM
SET UP JOB .....
M. MANUAL SET-UP
R. RECALL JOB FILE FROM FLOPPY DISK AND EDIT
E. EXPOSE JOBS
S. SUSPEND SET UP - RETURN TO MENU
TYPE LETTER REQUIRED :
Select:
See Note 3
[S] or [M] or [E] or [R]
See Fig 7.2 (b)
See Fig 7.2 (d)
Escape to Level 1 Menu
See Fig 7.2 (c)
8690

Figure 7.2(a) Multran Flowchart

Note 1: If there have been no set-ups from a previous multran run, you will always press **[N]** and when asked if you wish to destroy previous set-ups press **[Y]**.

Note 2: **n** represents the last job number **m** represents the last job name **hhh** represents the horizontal film so far committed.

These steps will be omitted for the first job if no set-ups from a previous multran run have been restored.

Note 3: The VDU will then display a list of options and the scanner expose function will be disabled until all the transparencies have been set up.

The format of all jobs must be the same. It is set on the SDT immediately before exposing. This overrides the format set up on the analyse unit.

S If you press **[S]**, at any time during the Multran Sequence, it will be suspended and the Level One Menu will reappear on the VDU screen.

M If you select **[M]**, you can manually set up a job using any or all of the scanner functions, including CVs (edited if required).

E If you press **[E]**, you can expose jobs already set up.

R If you press **[R]**, you can recall a job file from floppy disk to the scanner and edit this file to set up a job.

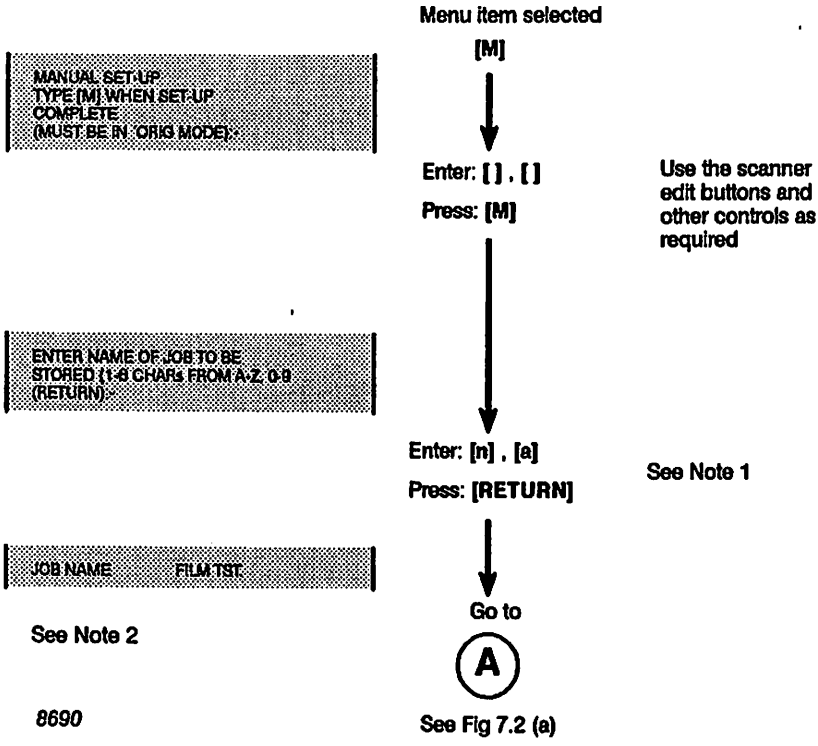


Figure 7.2(b) Multran Option M

Note 1: The system computer will then decide whether the film capacity has been exceeded.

As each job is set up the system computer recalculates the output film area required to expose all the separations. Allowance is made for a 10 mm space between separations and a scanning area of 700 mm x 635 mm is assumed.

Note 2: If there is insufficient film available, the VDU will display: **horizontal film width exceeded. Film change necessary on exposure eee.**

This assumes that you expose **all** transparencies in the order set up. You can **selectively** expose jobs set-up. See Figure 7.2(c).

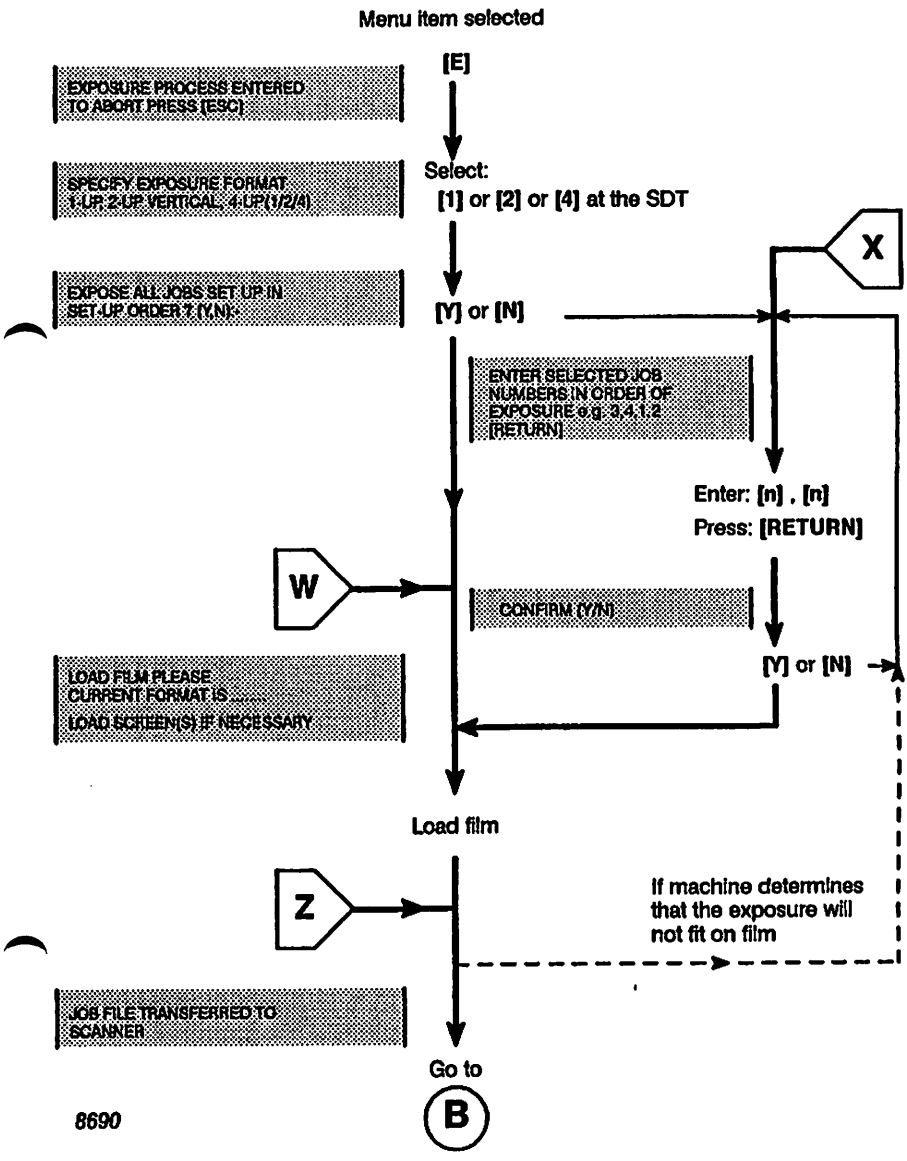


Figure 7.2(c) Multran Option E

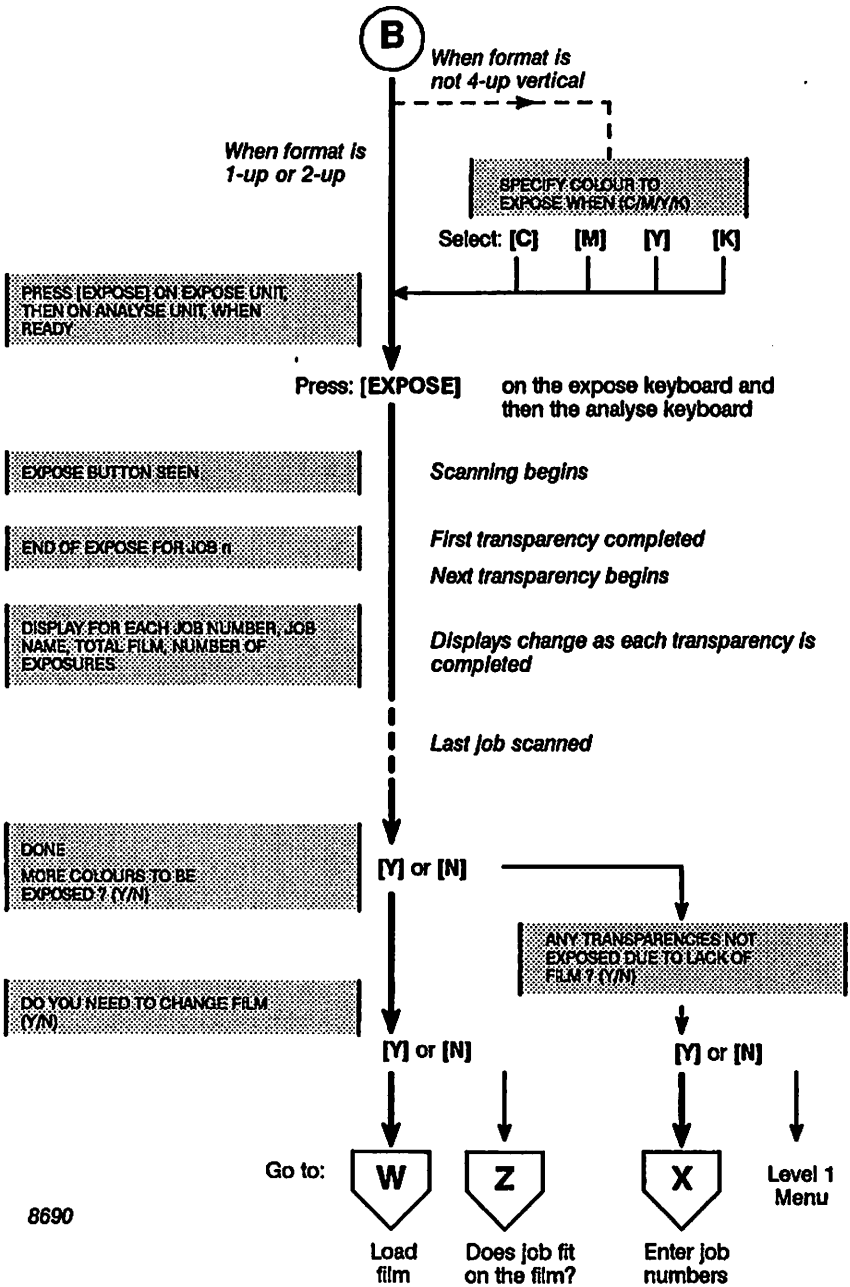

B
When format is not 4-up vertical
When format is 1-up or 2-up
SPECIFY COLOUR TO EXPOSE WHEN (C/M/Y/K)
Select: [C] [M] [Y] [K]
PRESS [EXPOSE] ON EXPOSE UNIT, THEN ON ANALYSE UNIT, WHEN READY
Press: [EXPOSE] on the expose keyboard and then the analyse keyboard
EXPOSE BUTTON SEEN
Scanning begins
END OF EXPOSE FOR JOB n
First transparency completed
Next transparency begins
DISPLAY FOR EACH JOB NUMBER, JOB NAME, TOTAL FILM, NUMBER OF EXPOSURES
Displays change as each transparency is completed
Last job scanned
DONE MORE COLOURS TO BE EXPOSED ? (Y/N)
[Y] or [N]
ANY TRANSPARENCIES NOT EXPOSED DUE TO LACK OF FILM ? (Y/N)
DO YOU NEED TO CHANGE FILM (Y/N)
[Y] or [N]
[Y] or [N]
Go to:
W
Z
X
Level 1 Menu
Load film
Does job fit on the film?
Enter job numbers
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Figure 7.2(c) Continued

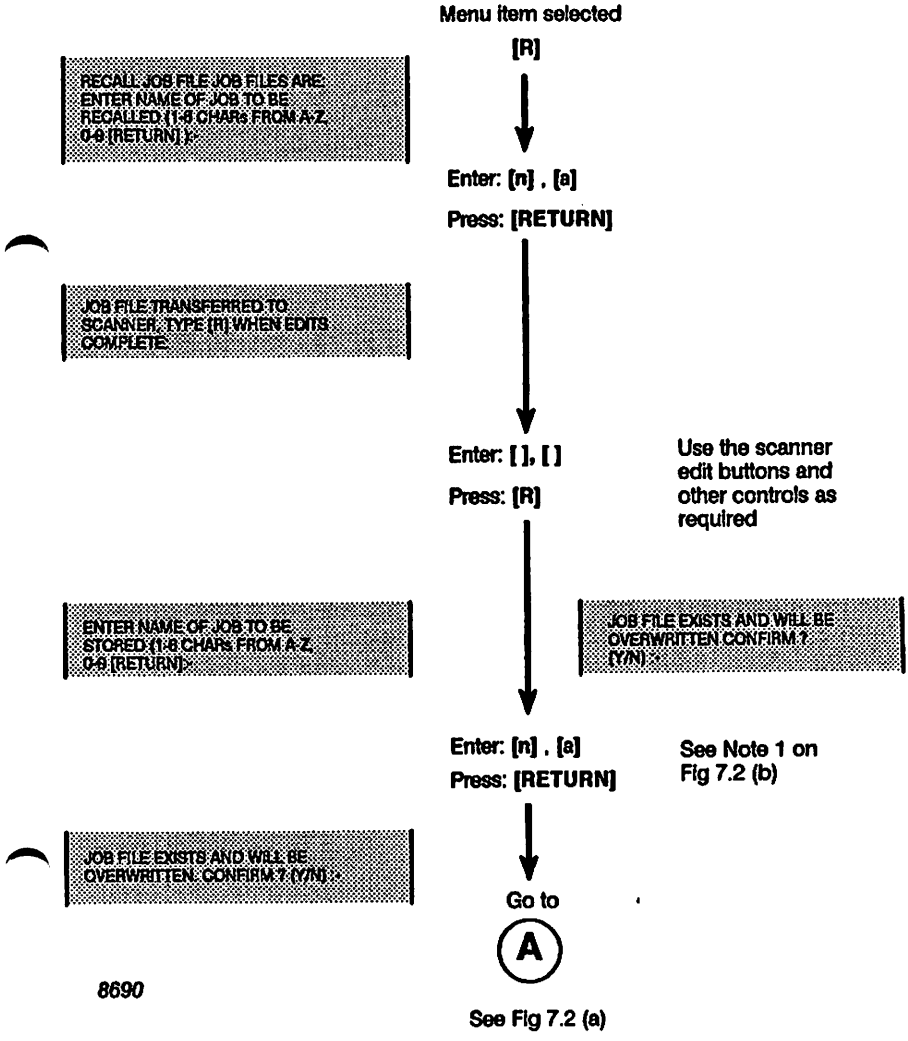
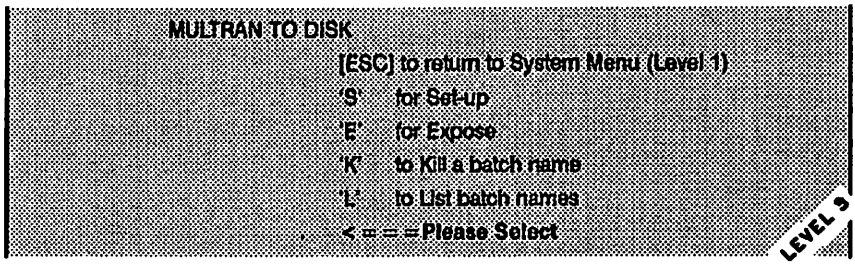

Menu item selected
[R]
RECALL JOB FILE JOB FILES ARE: ENTER NAME OF JOB TO BE RECALLED (1-8 CHARs FROM A-Z, 0-9 [RETURN]):
Enter: [n] , [a]
Press: [RETURN]
JOB FILE TRANSFERRED TO SCANNER. TYPE [R] WHEN EDITS COMPLETE.
Enter: [ ], [ ]
Press: [R]
Use the scanner edit buttons and other controls as required
ENTER NAME OF JOB TO BE STORED (1-8 CHARs FROM A-Z, 0-9 [RETURN]):
JOB FILE EXISTS AND WILL BE OVERWRITTEN CONFIRM ? (Y/N) :
Enter: [n] , [a]
Press: [RETURN]
See Note 1 on Fig 7.2 (b)
JOB FILE EXISTS AND WILL BE OVERWRITTEN. CONFIRM ? (Y/N) :
Go to
A
8690
See Fig 7.2 (a)

Figure 7.2(d) Multran Option R

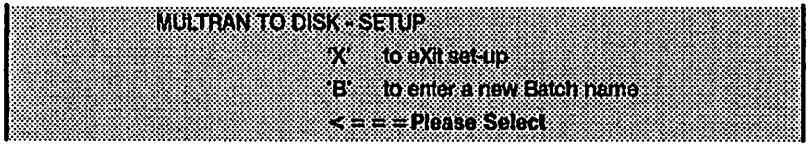
7.6.2 IPSCA1 - Multran Expose To Disk

To Perform a Multran expose to disk, select Option 2 - IPSCA1 from the Multran Sequences menu.


MULTRAN TO DISK
[ESC] to return to System Menu (Level 1)
'S' for Set-up
'E' for Expose
'K' to Kill a batch name
'L' to List batch names
< = = = Please Select
LEVEL 3

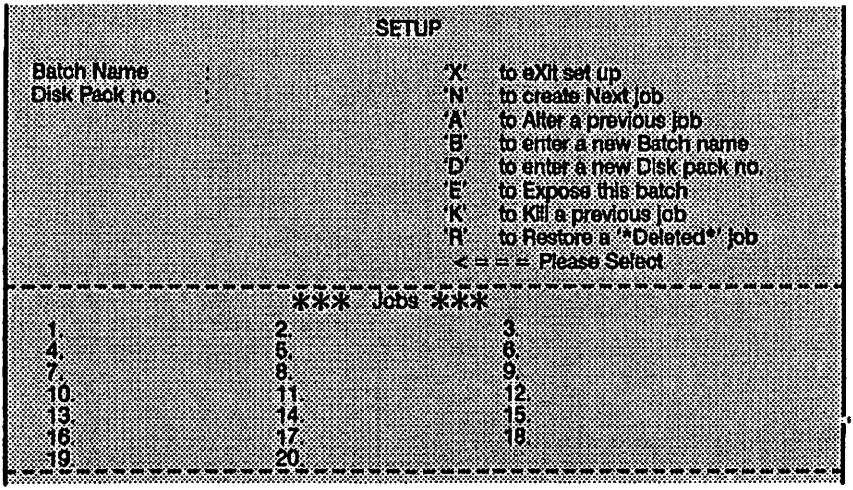
Note: Press [ESC] twice.

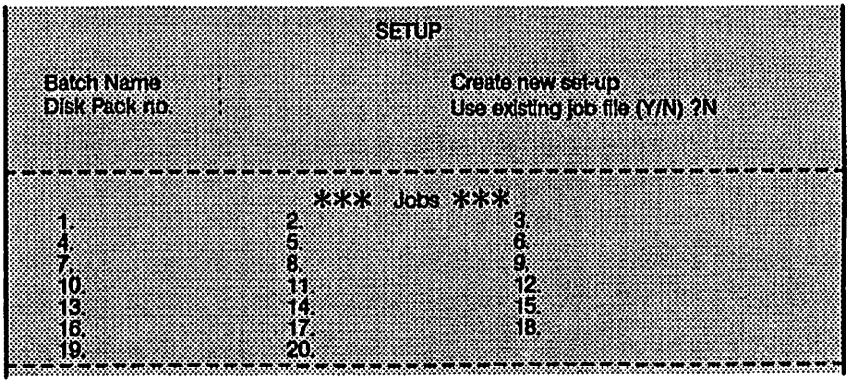
1. A batch name must exist on the job floppy before a new job can be created. Press [S].



To enter a new batch name, press [B]. This allows the operator to create a new batch name or to select from the directory a batch name other than the current one. The batch name should use four characters.

Press [RETURN]


SETUP
Batch Name :
Disk Pack no. :
'X' to eXit set up
'N' to create Next job
'A' to Alter a previous job
'B' to enter a new Batch name
'D' to enter a new Disk pack no.
'E' to Expose this batch
'K' to Kill a previous job
'R' to Restore a '*Deleted*' job
< = = = Please Select
*** Jobs ***
1. 2. 3.
4. 5. 6.
7. 8. 9.
10. 11. 12.
13. 14. 15.
16. 17. 18.
19. 20.

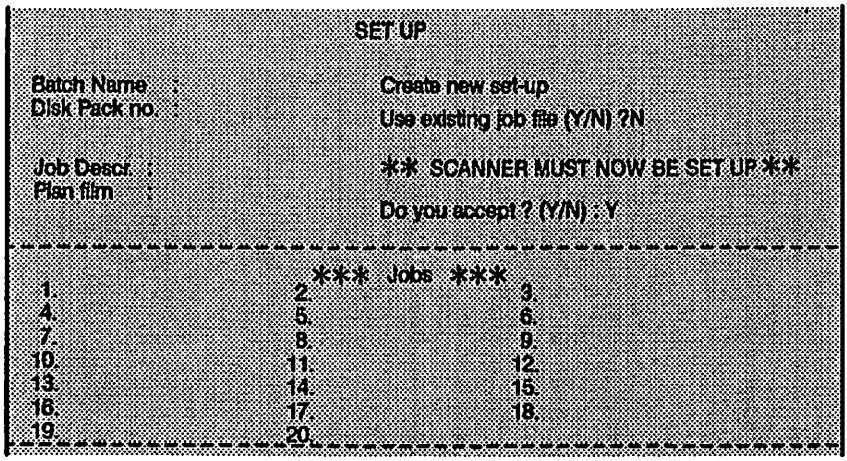


Press [N] [RETURN]

To create the next job upon selection of the batch name, press **[N]**. The following prompts will be displayed:

After the job description has been entered and **[RETURN]** pressed, the Plan film shows **N**. To accept this, press **[RETURN]**.

The system defaults to **N** if **[RETURN]** is pressed after the plan film prompt. The next prompt is:



Set up the scanner and then press **[Y]**.

To revert to the Multran Sequences press **[N]**. Before entering **[Y]** the operator should first set up the scanner in readiness for the next scan. Pressing **[RETURN]** defaults the system to 'yes', whereupon the following messages are displayed:

At this stage the setup menu returns and one of a number of steps may be taken:

A new job can be created in the current batch, press **[N]**.

A previous job can be altered, press **[A]**.

A new batch name can be entered and jobs created in it, press **[B]**.

The disk pack number can be altered to the one for which the scan is being made, press **[D]**.

A job can be deleted from a batch, press **[K]**.

A deleted job can be restored to a batch, press **[R]**.

To expose a batch, Select **E** from the Multran-to-disk sub-menu. The following prompts appear:

```
                    MULTRAN TO DISK - EXPOSE

Batch Name      :                   'X'   to eXit expose
Disk Pack no.   :                   'E'   to Expose batch
                                    'B'   to enter a new Batch name
Start with Job no.  :               'D'   to enter a new Disk pack no.
Finish with Job no. :               'L'   to List Batch names
                                    'S'   to enter Start and finish nos.

                                        <= = = Please Select
-------------------------------------------------------------------------
                        *** Jobs ***
 1.          2.                      3.
 4.          5.                      6.
 7.          8.                      9.
10.         11.                     12.
13.         14.                     15.
16.         17.                     18.
19          20.
-------------------------------------------------------------------------
```

The operator must then select the one to be used. Typically on pressing **[E]**:

```
Allow compaction (Y/N) ?Y
```

Shortage of Image Disk Space

When a batch of job files is being exposed in Multran-to-disk operation, the system defaults to starting with job number 1 and then scans the rest of the jobs in sequence. If there is insufficient space on the Image Disk to accept all the scans, the system will stop and report the problem. A new disk must then be provided, either by copying images off the existing disk and deleting to make space available on the existing disk, or by allocating a new disk. The Multran sequence can then be re-started. It is necessary, however, to enter a new start number to exclude the job numbers which have already been scanned. This is done using the Expose Option E, which occurs in the Multran-to-disk sub-menu. The required command is **[S]** - to enter start and finish numbers.

The system defaults to scanning the current disk, which is displayed in the Pack Number Line. A specific disk pack can be entered at this point. This is done using Expose option **[E]** in the Multran-to-disk sub-menu. The command is **[D]** - to enter the new disk pack number. If a pack number is designated and the operator wants to return the entry to the current disk then **[C]** must be entered. If two packs are on-line when the disk pack entry is set as current, then the operator is required to select one.

7.7 MAGNAPLAN

The Magnaplan facility is a unique masking system in which the positioning of pictures and tint blocks can take place within a defined background area. Coloured borders can be generated around all pictures and tint blocks to produce a complete assembly on one sheet of film.

Two types of masking system are available to the operator.

The first system, the Position System, is designed for the generation of tinted backgrounds and borders around copy which is already mounted into position and has one set enlargement factor.

A second system is called a Drop-in System and is designed to drop pictures into defined mask areas. Each picture is allowed a different enlargement factor and different set-up data. The copy for this drop-in system can be mounted anywhere on the analyse cylinder and each will be scanned into position using overscan techniques. This system is designed for use with the 646 IE/M laser dot generating units only. With the Drop-in system, overlapping of scanned features is allowed on a priority basis.

It is worth noting that both masking systems, Position and Drop-in, can be used on the 646 IE/M scanners.

It is very important to understand the differences in operation between the Position and Drop-in modes of producing masks.

The two methods require different preparation and different sequences are used for entering data.

The Drop-in system is far easier to use, in that most of the work is done by **entering data via the terminal.** Pre-preparation is the prime consideration when using this method. Measurement and other layout data must be accurate. Layout data can be programmed for this method **whilst the scanner is exposing straight sets.** This is a very important feature as a number of layouts can be programmed without disturbing normal operation of the scanner.

The Position system requires that most of the operation be done on the analyse unit, which could occupy the scanner for a considerable length of time. In some cases, preparation can be done a lot easier when using the Position mode if the layout co-ordinates can be entered directly from an accurate supplied layout mounted onto the analyse cylinder. This method is, however, very limited and not as accurate as the Drop-in method in most cases.

The Position mode of operation is ideal where assembled film duplicates are used as copy, or where reflection copy is already mounted into position on flexible card.

It is possible, when using 646 IE/M scanners to combine the two modes of operation. Using a combination of the two should only be attempted after some experience has been gained by first operating the two methods separately.

It is important to remember that only the Position method can be used on contact screen scanners or for continuous tone, due to the re-scans involved during drop-ins.

Colour Palette

A facility to store 200 colour blocks is available to the operator. He can create a permanent colour palette from which he can select tint values to be incorporated into a mask. These tint values can be altered at any time and can be scanned out for printing and reference purpose. Values of Cyan, Magenta, Yellow and Black are entered for each block and the required mix will be recalled, thus providing a specific colour for use in any element of the mask.

The Generation of Tinted Backgrounds

A background for each mask must be defined and is limited in size to that of the expose unit in use. Backgrounds must encompass all elements within the mask. The created background may be coloured or have zero tint values.

The Generation of Tinted Blocks

Rectangular blocks of colour can be generated within the background area. Up to 32 tint blocks may be incorporated in a single mask and can be coloured or left with a zero tint value.

The Generation of Tinted Borders

Borders can be generated around tint blocks and scanned images. The four borders can have different dimensions. Each border is adjustable in 0.1 mm increments to a minimum of 0.2 mm. As a special case the left and right hand borders can be set to zero, but not to 0.1 mm, as this adjustment is achieved only with a final increment of 0.2 mm. Borders may be coloured or left with zero tint values.

Pictures in Position (Position System)

Pictures already mounted into position on the analyse cylinder can be reproduced within a scanner generated tint background and have coloured borders. Cropping of the original will take place as indicated by the operator. These pictures may be combined with tint blocks and Drop-in pictures on E output units.

Drop-in Pictures (Drop-in System)

Copy mounted on the analyse cylinder will be positioned accurately within a generated background area. When the Drop-in System is used, each original may have a different enlargement factor and different colour set-up parameters. Overlapping of scanned images is allowed on a priority basis. Eight drop-ins can be incorporated in a single mask.

Overlay Priority

Scanned images, tint blocks and borders may be overlaid according to an overlay priority numbering system. Each element within a mask must be given an overlay priority number between 3 and 999. The background has an overlay priority of 2. Mask elements will have priority according to the numbers which they have been given. The higher the number, the higher the element that will be produced within the mask.

Alphanumeric Displays

Displays of co-ordinate data entered for mask elements, their overlay priorities, colour values and final sizes are available for the operator. These allow an accurate check to be made on all details related to the mask prior to scanning.

Job File Storage

A job file can be linked to a drop-in during the Magnaplan set-up phase. It is automatically recalled at the start of the expose phase of the drop-in. Job file aspects are described in Section 7.8.

Mask Storage and Retrieval

All data required to produce a specific mask can be stored onto floppy disk. The job files of the originals to be scanned are also stored. This data can be recalled at any time for a re-scan and no new set-up is

required. If copy has been removed from the analyse cylinder, only their positions need to be re-entered. The colour set-up data will be automatically recalled.

Each layout can be stored with a number and description for easy identification. The date and time of creation is also stored automatically. In the event of a layout not being permanently stored, the layout data will be saved on a temporary basis when the expose button is pressed.

Full directories of stored layouts can be displayed showing description and date and time of creation.

Magnaplan Overscan Routine

A time-saving feature of Magnaplan is that only with the first and last drop-in does the expose head traverse the full width of the page area. In intermediate drop-ins the expose head stops as soon as the drop-in has been exposed.

For best use of this feature, the first and last drop-ins should be positioned furthest away from the Datum Point of the expose unit (the Datum Point is positioned at the extreme left of the expose cylinder).

Figure 7.3 illustrates how time can be saved with a typical four drop-in page layout.

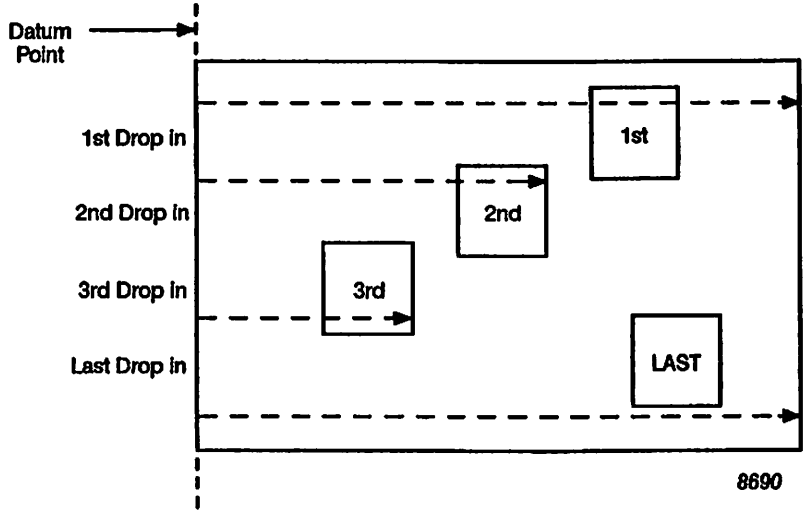


Figure 7.3 Four Drop-in Page layout

Before each drop-in is exposed, the expose head returns to the Datum Point, as follows:

1. 1st Drop-in: the expose head covers the entire width of the page, exposing tint blocks, register marks and 1st drop-in.
2. 2nd Diagram: the expose head need only expose to the end of the drop-in.
3. 3rd Diagram: the expose head exposes to the end of the drop-in.
4. Last (fourth): the expose head traverses the full page Drop-in width and **[EXPOSE HOLD]** is enabled.

Note: Further Magnaplan layouts **must not** be attempted at this stage.

Pre-Preparation

Pre-preparation is very important if re-scans are to be avoided and to ensure that film and time are not wasted.

Pre-preparation sheets (see Section 10.7) have been drawn up which will prompt the operator and will ensure that all required layout data has been established.

Sheet 1

A colour palette sheet is necessary to allow the operator to log each colour mix next to a palette number. In some cases the operator might generate and print these colour mixes thus producing an in-house colour book.

The colour palette is used to tint the borders, background and tint blocks and can be programmed with any colour mixes required.

The colour palette should always be programmed with the required colour mixes before the data for the layout is entered.

Sheet 2

This sheet is provided for all layout co-ordinate data, overlay priorities and border dimensions. If filled in correctly, few planning errors should result.

Sheet 3

This is a job file sheet used mainly for Drop-in pictures which is filled in by either the planner or the scanner operator. The name of the job file together with the tint block number into which the job is to be exposed is entered on this sheet.

7.7.1 Procedure for Drop-in Masks

Entering Colour Palette Values (Sheet 1)

The mask can be created using colours from the permanent colour palette. However, if a new colour mix is required for the layout, it should be entered onto the pre-preparation sheet (sheet 1). The desired colour mix should be allocated colour numbers between 001 and 200 and against these numbers should be recorded the values of cyan, magenta, yellow and black to achieve the colour. Note that zero values of cyan, magenta, yellow and black should also receive a colour number.

Entering Layout Data (Sheet 2)

Establish whether or not the layout is to be produced lateral or reverse reading and tick the appropriate box. Also indicate whether the page format is correct or sideways. (This will help when the copy is to be mounted on the analyse drum).

Enter the colour palette number and the horizontal and vertical dimensions for the background.

Tint Blocks

Coloured tint blocks can be positioned anywhere in the background area. The colours are entered by colour-palette number.

Drop-in pictures are assigned to Tint Block numbers so these tint blocks must be created before the drop-in is indicated. The colour entered for Drop-in tint blocks is immaterial as zero values are automatically generated if a Drop-in is indicated.

Enter the border sizes required for the tint block or drop-in picture. Remember there is a vertical offset limit of 0.2 mm so the top and bottom borders cannot have a dimension less than 0.2 mm. Borders at the sides, however, can have a minimum dimension of zero.

The overlay priority for the tint block can have any number from 3 to 999. Each element must have a priority to indicate whether or not it overlays another element. No two elements can have the same number. The background has a priority of 2 and any element given the number 1 will be hidden beneath the background. Entering a value of 0 effectively deletes an element.

Borders should have a priority lower than the tint block otherwise they will cover the tint block or the drop-in to be exposed therein.

The positioning of the tint blocks is very simple. Effectively we require to enter the co-ordinates of the top left and bottom right corners of each tint block. All co-ordinates are measured relative to the top left-hand corner of the background.

The x co-ordinate is the dimension from the left edge of the background and the Y co-ordinate is the dimension from the top of the background.

Therefore entering the top x and Y co-ordinates, positions the top left hand corner of the tint block and the bottom x and Y co-ordinates positions the bottom right hand corner of the tint block.

Remember that measurements must be made for all X and Y co-ordinates for the left-hand side and top of the background edge.

This data is obtained by measurement from the layout and entered on the sheet for each tint block.

Figures 7.4(a), (b), (c) and (d) show dimensioning typical for colour plate examples.

Job File Data (Sheet 3)

This data can be entered and passed to the scanner operator with the originals to be scanned. Each original must be numbered so that it can be assigned to a tint block.

Enter onto the sheet the tint block number into which the originals are to be dropped.

Enter the description of the original under which it will be stored.

Indicate whether or not distortion is allowed in the enlargement.

The co-ordinates, or required scanning area, must be clearly marked on the original if precise areas are to be scanned.

Indicate whether or not the picture is to be laterally reversed and whether the page is to be scanned upright or sideways format so that the originals can be mounted correctly. The POS/NEG requirement should also be indicated.

7.7.2 Procedure for Position Masks

Entering Colour Palette Values

The mask can be created using colours from the permanent colour palette. However, if a new colour mix is required for the layout, it should be entered onto the pre-preparation sheet (sheet 1). The desired colour mix should be allocated colour numbers between 001 and 200 and against these numbers should be recorded the values of cyan, magenta, yellow and black to achieve the colour. Note that zero values of cyan, magenta, yellow and black should also receive a colour number.

Entering Layout Data

When the Positions system is being used, the positions of the elements are entered on the Analyse unit from the layout. Position co-ordinates therefore, are not noted on the pre-preparation sheet.

Border sizes, palette numbers and overlay priorities can be noted down in the areas provided.

It is also helpful to indicate the format requirements and the size of the mask.

Layout Preparation

The layout to be mounted on the Analyse cylinder must be accurate. All co-ordinates for the elements must be clearly indicated. If a mask is to be made from transparent copy then the layout should be drawn up on clear film base so that the copy can be mounted into the correct position. For reflection copy, the layout can be drawn onto any flexible paper onto which the colour copy can be fixed. It is not necessary to have the copy cropped to the correct size as the scanner will do this automatically. The best type of layout for the Position system would be made as a composite duplicate where the range of each original is exactly the same.

Job Set-Up

All originals used in the creation of the mask will have the same set-up data. This data will be taken from the settings on the analyse keyboard at the time of exposure. All enlargement factors will be the same but will not affect the overall size of the mask when entered on the analyse keyboard.

Entering the Data at the Terminal and Analyse Unit

The data for borders, overlays and palette colours are all entered at the terminal in either the Picture Data or Tint-block Data sections.

The position of each element is given in at the analyse unit by entering the top-left and bottom-right co-ordinates using the crosshair on the scanner in the normal way. (Top-right and bottom-left may also be entered).

The following points should be remembered:

1. All copy will have the same set-up data including enlargement.
2. All copy must be mounted into their position on the Analyse cylinder.
3. All co-ordinate data for the layout elements is entered on the analyse unit. The operator is not prevented from entering the data on the terminal if this is more convenient and the co-ordinate data is provided.
4. The layout is defined in final size co-ordinates.

Exposing

The scanner requires only one pass of the originals to create a Position mask. All tint blocks, background tints and pictures will be scanned into the position entered via the analyse unit.

7.7.3 Entering Data at the Terminal

Once all the data has been filled in on the pre-preparation sheets, data entry can take place on the terminal. To obtain Magnaplan from the Level One menu, select Option 5 - Magnaplan.

```
5. MAGNAPLAN
**********
0. Return to the level one menu.
1. BORDER
select one by typing its number -
```

Press: **[1]**

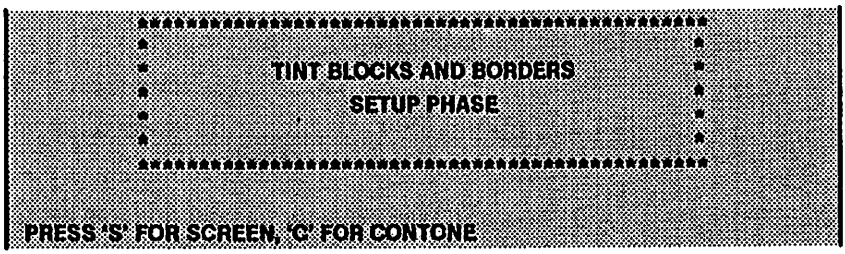
```
TINT BLOCKS AND BORDERS
HANDLER
SETUP OR EXPOSE? (S OR E, ESC TO EXIT)
```

To enter the set-up phase so that data for a new layout can be entered, press **[S]**.

To expose layouts that have previously been set-up and stored on floppy disk, press **[E]**.

To exit and return to the Level One Menu, press **[ESC]** twice.

Press: **[S]**



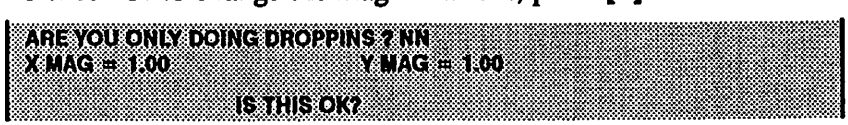
Press: **[S]** (the Option C is not applicable.)

For drop-ins only, press **[Y]**

The A-Z options menu will appear.

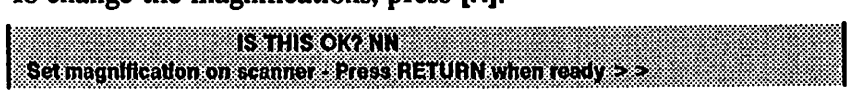
Note: If you are only doing drop-ins, then all co-ordinates except those of the drop-in pictures, must be specified from the VDU keyboard in terms of final size. Co-ordinate entries from the analyse unit will be ignored. This is because the background area has not been specified relative to the analyse cylinder and can float over it. Also it will not subsequently be possible to specify any pictures other than drop-ins.

To check or to change the magnifications, press **[N]**.



This is the only chance you will have to change the magnifications, and so it is important that you make certain that the correct values are selected.

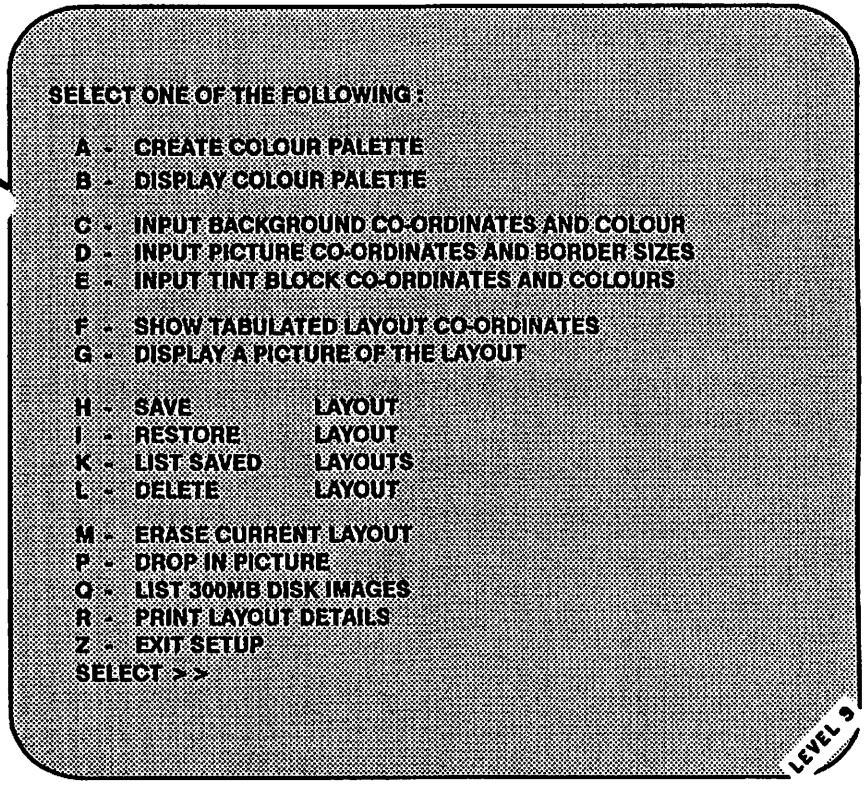
To change the magnifications, press **[N]**.



Press **[RETURN]** and enter the required magnifications.

When the magnifications are correct, press **[Y]**.

The A-Z options menu will then be displayed.


SELECT ONE OF THE FOLLOWING :
A - CREATE COLOUR PALETTE
B - DISPLAY COLOUR PALETTE
C - INPUT BACKGROUND CO-ORDINATES AND COLOUR
D - INPUT PICTURE CO-ORDINATES AND BORDER SIZES
E - INPUT TINT BLOCK CO-ORDINATES AND COLOURS
F - SHOW TABULATED LAYOUT CO-ORDINATES
G - DISPLAY A PICTURE OF THE LAYOUT
H - SAVE LAYOUT
I - RESTORE LAYOUT
K - LIST SAVED LAYOUTS
L - DELETE LAYOUT
M - ERASE CURRENT LAYOUT
P - DROP IN PICTURE
Q - LIST 300MB DISK IMAGES
R - PRINT LAYOUT DETAILS
Z - EXIT SETUP
SELECT >>
LEVEL 3

When using menu options A, C, D, E, F, G and P the following standard alternatives are available:

To return to the Level 3 A-Z Menu, press **[M]**

To return to the Level One Menu, press **[ESC]**. All data will be lost.

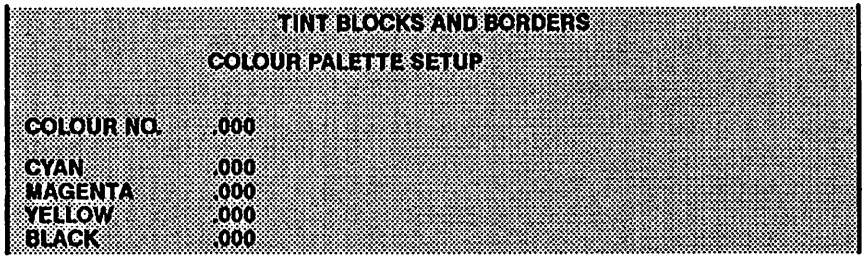
Note: When working in a menu item, pressing **[B]** moves backwards (or to previous item) in the process and pressing **[F]** moves forwards (or to next item).

The following Sections describe the operation of each option.

7.7.4 Option A - Create Colour Palette

This allows the operator to programme up to 200 different mixes of Cyan, Magenta, Yellow and Black and to store them permanently as a colour palette. The tints created in any layout produced are entered from the colour palette data as a single number to recall a full colour mix. This data can be overwritten if new data is entered.

To select this option, press **A**. Dependent on screen control (S) or (C), the VDU will display:



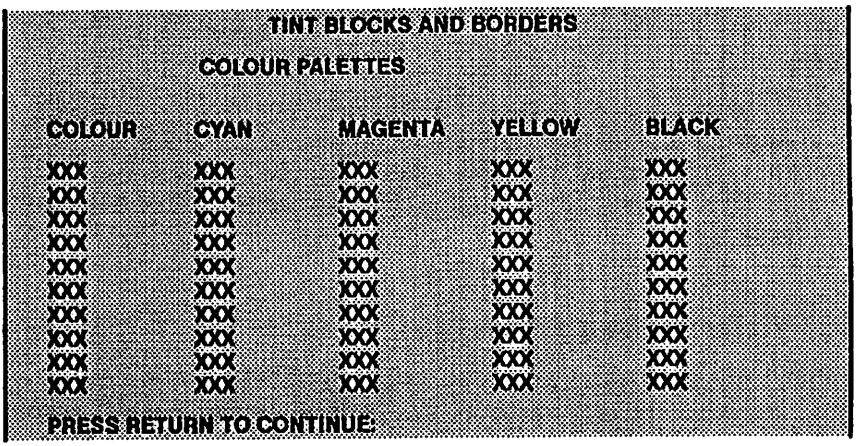
Enter the palette numbers and colour mixes required as written on the pre-preparation sheet.

The following alternatives are available to you:

- To input the next colour, press **[F]**.
- To input the previous colour, press **[B]**.

7.7.5 Option B - Display Colour Palette

If you press [B], the VDU screen will show in tabular form all those colours which have been used in the layout as follows:

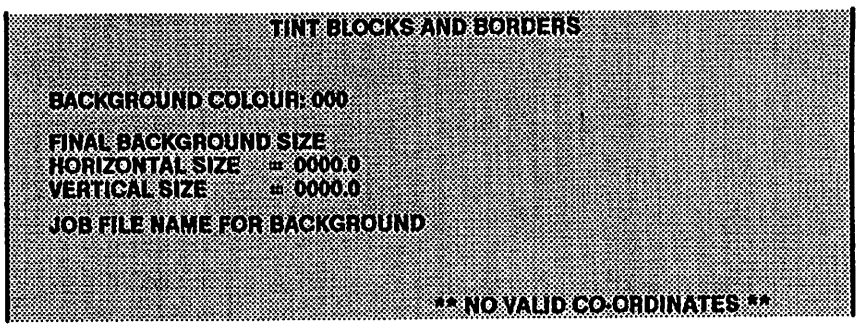


To display the A-Z Menu, press [RETURN]

7.7.6 Option C - Input Background

This allows the operator to enter colour data the size of the mask background. Data can be entered via the VDU where drop-ins are taking place, but where copy is already in position on the analyse drum then all co-ordinates must be entered via the analyse unit (position mode).

To select this option, press [C]


TINT BLOCKS AND BORDERS
BACKGROUND COLOUR: 000
FINAL BACKGROUND SIZE
HORIZONTAL SIZE = 0000.0
VERTICAL SIZE = 0000.0
JOB FILE NAME FOR BACKGROUND
** NO VALID CO-ORDINATES **

After each entry, press [RETURN].

To get to the Job File Name for background, press [M].

To return to the A-Z Menu, press **[RETURN]**.

You should now select the background colour.

When you have entered the size on the VDU or analyse unit, the **** NO VALID CO-ORDINATES **** message will be erased from the screen.

Note: If the background co-ordinates are entered via the data terminal and no co-ordinates have been previously entered via the analyse unit, then the reference point for the original co-ordinates will correspond to the datum point of the analyse cylinder.

7.7.7 Option D - Input Picture Data

This facility is used where pictures are already mounted into position on the analyse drum and will not be available if only drop-in pictures are being done. All position co-ordinates should be entered via the analyse keyboard for this facility.

Note: If a combination of both drop-ins and pictures in position is to take place then this facility will operate.

To select this option, press **[D]**

```
                    TINT BLOCKS AND BORDERS
                        BORDER SETUP

PICTURE No. 1

FINAL BORDER WIDTHS (mm)          FINAL PICTURE CO-ORDINATES

ALL      000.0                    TOP LEFT      X    0000.0
TOP      000.0                    TOP LEFT      Y    0000.0
BOTTOM   000.0                    BOTTOM RIGHT  X    0000.0
LEFT     000.0                    BOTTOM RIGHT  Y    0000.0
RIGHT    000.0

ENTER PICTURE OVERLAY PRIORITY:      000
ENTER BORDER OVERLAY PRIORITY:       000
ENTER COLOUR PALETTE NUMBER:         000

                                  ** NO VALID CO-ORDINATES **
```

When you have entered the picture co-ordinates for the current pictures on the analyse unit or VDU keyboard, the ****NO VALID CO-ORDINATES **** message will be erased from the screen.

If you enter a value in the **ALL** field, the **TOP, BOTTOM-LEFT** and **RIGHT** border widths will immediately display and be set to this value. The cursor will position to the next field. Setting the **ALL** field will not prevent subsequent alteration of border widths.

If you have not specified a background, the error message **NO BACKGROUND** will be displayed for three seconds and the VDU will display the Level Two Menu.

The following alternatives are available to you:

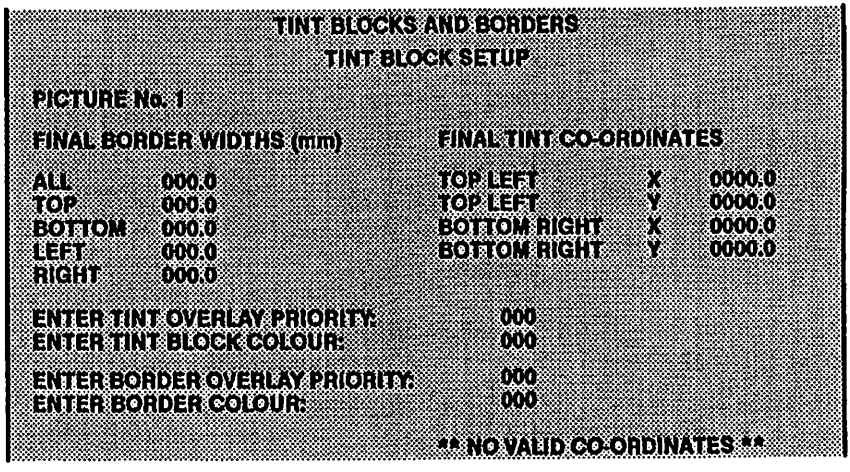
To step to the border set-up data message for the next picture, press **[F]**. This will be disallowed if the co-ordinates for the current picture have not been entered.

To step back to the previous picture to re-enter the border set-up data, press **[B]**.

7.7.8 Option E - Input Tint Block Data

This facility allows tint blocks to be generated within a given background area. Co-ordinates are entered via the analyse unit for Position Operation or via the VDU if only drop-ins are to be scanned. If the drop-in option is chosen then all position and border data for the copy to be dropped in is given using tint block data entry.

To select this option, press **[E]**.



When you have entered the tint block co-ordinates on the analyse unit or VDU keyboard, the ** **NO VALID CO-ORDINATES** ** message will be erased from the screen.

If you enter a value in the **ALL** field, the **TOP, BOTTOM-LEFT** and **RIGHT** border widths will immediately display and be set to this value. The cursor will position to the next field. Setting the **ALL** field will not prevent subsequent alteration of border widths.

If you have not specified a background, the error message **NO BACKGROUND** will be displayed for 3 seconds and the VDU will display the Level Two Menu.

To step to the border set-up data message for the next tint block, press **[F]**. This will be disallowed if the co-ordinates for the current tint block have not been entered.

To step back to the previous tint block to re-enter the border set-up data, press **[B]**.

7.7.9 Option F - Display Layout Co-ordinates

This display allows the operator to check feature positions, colour values, sizes etc. It will also display original copy position on the analyse drum and the size of the original area entered.

When you press **[F]**, the layout screen will give you in tabular form, the positions of all the entered picture/borders, tint blocks and the background.

```
                    FINAL CO-ORDINATES

X MAG = 1.00    Y MAG = 1.00
                    CO-ORDINATES
                HORI    VERT    HORI    VERT    COLOUR    PRORITY
BACKGROUND 1    0.0     0.0     11.0    11.1    1         2

                PRESS RETURN TO CONTINUE> >
```

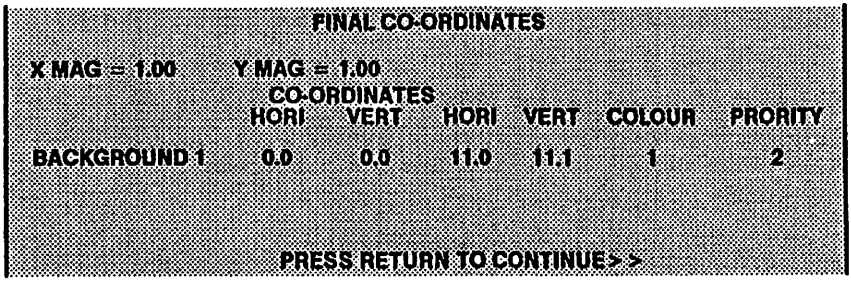
If a picture or tint block has not been entered then no banner will appear for that entry.

The colour column will be zero for pictures as they do not have any colours associated with them.

All original dimensions are the absolute measurement in millimetres from the analyse cylinder datum point. The picture co-ordinates are exclusive of the borders.

All final dimensions are the relative measurement in millimetres from the top left-hand corner of the background. The picture co-ordinates are exclusive to the borders.

When you press **[RETURN]**, the VDU will display:



To display the A-Z Menu, press **[RETURN]**.

7.7.10 Option G - Display Picture of Layout

To select this option, press [G]. The VDU screen will display in graphical terms, a picture of the layout showing all pictures, tint blocks and the background, in their correct relative positions. This layout will be limited in accuracy by the resolution of the screen.

The VDU screen will display how the final layout will appear.

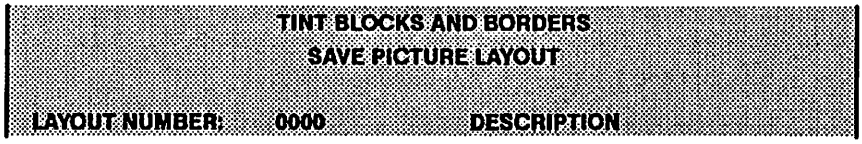
All hidden detail will be removed according to the relative priorities set by the operator.

Picture areas will be shown with solid shading for ease of recognition.

7.7.11 Option H - Save Layout

This allows the operator to store all layout data onto floppy disk. All position data, colour data and copy position will be stored. Up to 150 layouts can be stored on a clean job disk, and each can be given a number and title. The range of layout numbers available extends from 1 to 998 inclusive. The description of a layout may be any combination of letters or numbers or special characters up to a maximum of 40. These on the VDU screen indicate where the description must finish.

To obtain this option, press [H].



By saving the layout, you can remove the scanner cylinder and replace it at a later date. Using the restore command will recall all the co-ordinates and information relating to the cylinder, thus saving you the task of re-entering the co-ordinates on the scanner again. If the layout already exists, the VDU will display:

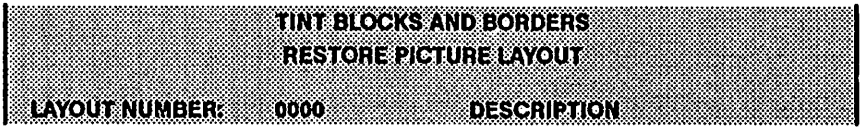
If you respond [Y], the original layout will be overwritten by the current layout and the time and date will be updated. If you respond [N], the VDU will display the menu and no action will be taken.

7.7.12 Option I - Restore Layout

This function simply recalls a stored layout. The number of the required layout is entered and the recalled layout will overwrite the data currently in memory.

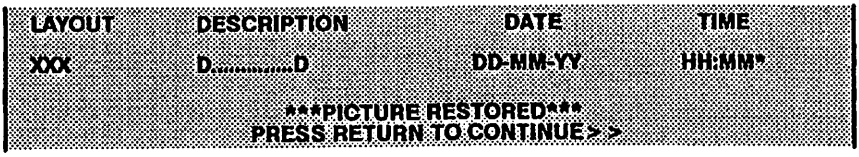
This option complements the Save Layout option. You can recall co-ordinates relating to a particular cylinder.

To obtain this option, press [I].



The layout number should correspond to a previously saved layout. If the layout cannot be found, an error message will be displayed for three seconds and you should then respond by re-entering the correct layout number.

When a layout has been successfully restored, the VDU will display:

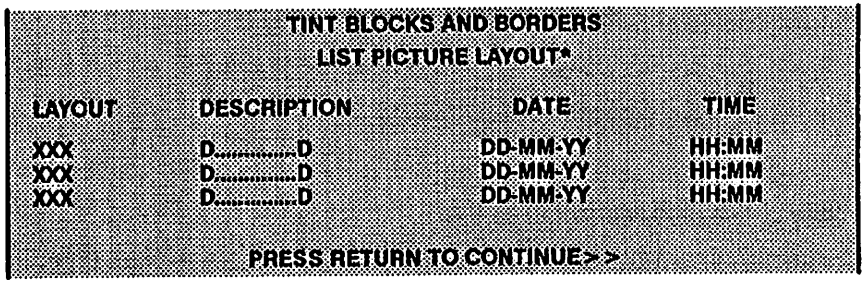


You may now verify that the correct layout has been restored by looking at the description and then by pressing **[RETURN]** go back to the menu.

7.7.13 Option K - List Saved Layouts

Provides the operator with a list or directory of all layouts stored on disk including the description and date and time of creation.

To obtain this option, press **[K]**. A list of all saved layouts will be displayed.



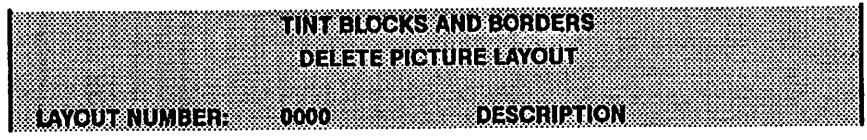
The asterisk denotes that the listed layout is also the current layout.

To display the A-Z Menu, press **[RETURN]**.

7.7.14 Option L - Delete Layout

Deletes any defined layout from the disk.

To obtain this option, press **[L]**



Enter the layout number which requires deletion and the VDU will display:

```
DELETE LAYOUT - ARE YOU SURE ?
```

You should then verify that the correct layout number has been entered and then by pressing [Y], delete the layout.

Any response other than [Y] will be treated as a No reply.

If the layout cannot be deleted for any reason (disk is write protected, file does not exist etc.), then an error message will be displayed for three seconds.

7.7.15 Option M - Erase Current Layout

This facility allows you to delete the layout currently in memory, if it becomes necessary to start again without re-entering the program. This will not affect any layouts saved on disk. It also allows you change the magnification on the analyse unit if necessary.

To obtain this option, press [M]. The VDU will display:

```
DELETE CURRENT LAYOUT - ARE YOU SURE ?
```

To delete the layout, press [Y].

To display the A-Z Menu, press [N].

If the layout cannot be deleted for any reason (disk is write protected, file does not exist etc.), then an error message will be displayed for three seconds.

7.7.16 Option P - Drop-In Picture

Drop-in is the term given to originals which are to be dropped into position in a layout but which have been mounted at random on the analyse cylinder.

A maximum of eight drop-ins is allowed for one layout due to possible dot growth when re-scans take place.

The position for the drop-in is given by entering data for a tint block. The drop-in is then given the tint block number and therefore its position. When scanning takes place, the drop-in will be exposed into the area which was defined for its tint block. Overlapping of scanned images can take place when Drop-in pictures are used.

The tint-block number is entered via the VDU and the co-ordinates of the area to be scanned are entered via the analyse unit from the copy.

If a number of drop-in pictures were to be scanned as part of a layout, this is basically how the scanner carries out the procedure:

1. First the background area and all tint blocks and borders are exposed. Areas into which the drop-ins will be exposed are exposed with zero tint values. The first picture is also scanned into position.

   Note: If a picture is not in position then the first drop-in will slot the picture in position.

2. For the drop-ins the expose head moves back to the beginning of the film each time. Where an exposure has previously taken place, zero tint values will be generated. Picture values for the next drop-in will be exposed into the window created during the first scan. Protect masks will be created automatically for the remainder of the layout.

   Note: The expose head moves across the entire page area when doing the drop-ins. This is beneficial in that all elements receive the same amount of exposure. This also ensures that the time required to scan a layout can be precisely determined before exposure.

3. The drop-ins are exposed in numerical order until all copy has been scanned.

Data stored for drop-ins does not include enlargement because the scanner is capable of calculating the enlargement from a copy or defined size going into a mask area of defined size.

The scanner will force the image to fit the mask area. If the cut-off points entered for the copy are not in proportion to the mask size, then the scanner will either distort the image or enlarge the image until the shortest side of the area fits the mask. The operator can select which method he would prefer by responding to the question **DISTORTION ALLOWED?** with either **[Y]** or **[N]**.

A facility is provided to allow the operator to enter a small amount of edge overlap (Grip) round the four sides of the image to ensure that there are no gaps between the image and the mask when the layout is exposed onto film. It is normally only necessary to use this facility on the left-hand side of the image.

To obtain this option, press [P]

```
                    TINT BLOCKS AND BORDERS
                    ANALYSE DROP IN SET UP
DROP IN No. 1
TINT BLOCK NUMBER 00        ("0" FOR DISK DROP IN SCREEN)
     ORIGINAL PICTURE CO-ORDINATES          GRIP    (.0 - .3mm)
        TOP LEFT        X   0000.0          TOP     .0
        TOP LEFT        Y   0000.0          BOTTOM  .0
        BOTTOM RIGHT    X   0000.0          LEFT    .0
        BOTTOM RIGHT    Y   0000.0          RIGHT   .0
PICTURE DISTORTION ALLOWED ? N
JOB SETUP FILE NAME ?
                                        ** NO VALID CO-ORDINATES **
```

The following alternatives are available to you:

To obtain the disk set-up screen if the analyse set-up screen is displayed, press [D].

To obtain the analyse set-up screen if the disk set-up screen is displayed, press [A].

To input next drop-in, press [F].

To input previous drop-in, press [B].

Note: You cannot change from the analyse set-up screen to the disk set-up screen or vice versa if you have entered a tint block number. To make a change, you should first return the tint block number to zero.

7.7.17 Option Q - List 300 Mbyte Disk Images

Note: If a tint-block number of zero is entered, then the drop-in will effectively be deleted.

To obtain a list of the images on the disk pack, press [Q].

The VDU will then display:

```
                    TINT BLOCKS AND BORDERS
                    LIST DISK IMAGES
DRIVES ON LINE ARE -
DRIVE TO LIST (9 FOR ALL ONE LINE)
```

or

```
*** NO 300MB DISKS ON LINE ***
```

Enter the number of the drives you require and the VDU will display:

```
TINT BLOCKS AND BORDERS
LIST DISK IMAGES

DRIVE : 0        PACK NUMBER :          DESCRIPTION :
IMAGE NUMBER     DESCRIPTION            SIZE HORIZ    VERT mm

PRESS RETURN TO CONTINUE > >
```

If there are no files on the selected drive's disk pack the VDU will display:

```
*** EMPTY DIRECTORY ***
```

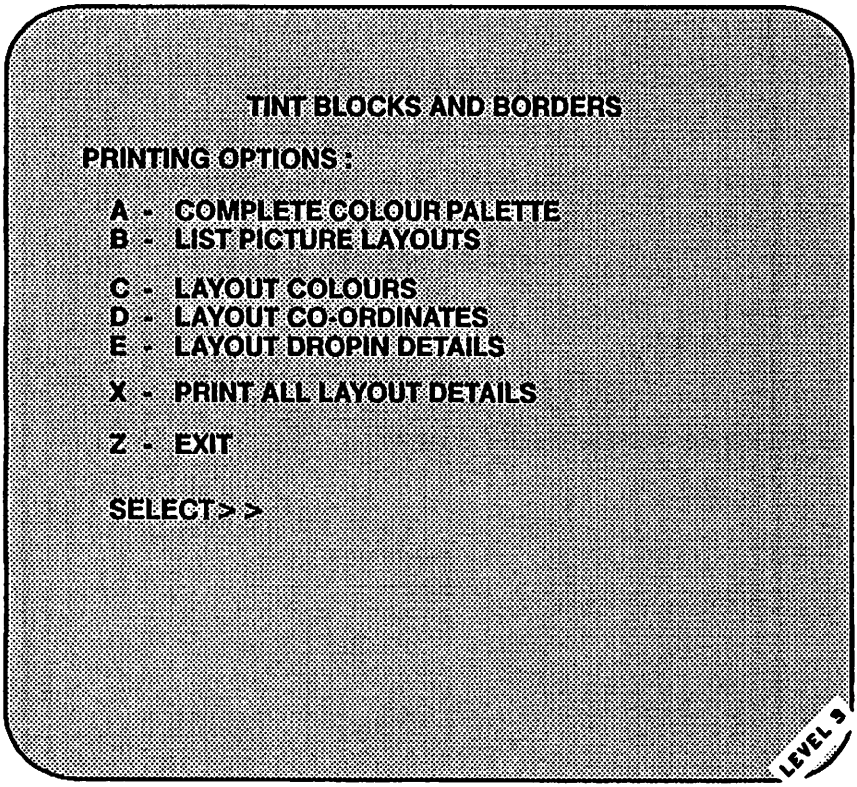
If there are files on the disk pack the VDU screen will display the entries, ending with:

```
*** PRESS RETURN TO CONTINUE ***
```

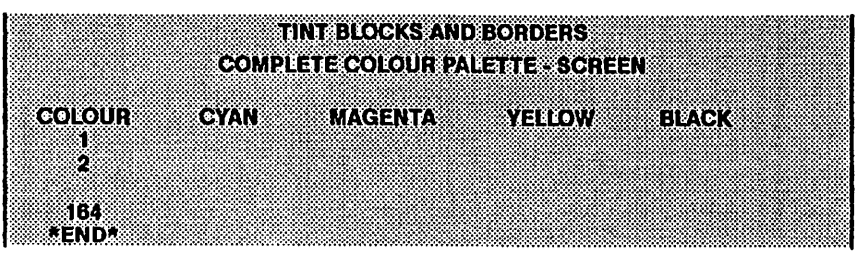
Press **[RETURN]** to restore the A-Z Menu.

7.7.18 Option R - Print Layout Details

To print the layout details, press [R]



On pressing [A] the VDU displays:



On pressing [B] the VDU displays:

```
                    TINT BLOCKS AND BORDERS
                    LIST OF PICTURE LAYOUTS

 NUMBER      DESCRIPTION                    DATE          TIME
```

On pressing [C] the VDU displays:

```
                    TINT BLOCKS AND BORDERS
                  COLOURS IN LAYOUT NUMBER 000
 DESCRIPTION:

 COLOUR       CYAN       MAGENTA       YELLOW       BLACK

   *END*
```

On pressing [D] the VDU displays:

```
                    TINT BLOCKS AND BORDERS
              FINAL CO-ORDINATES FOR LAYOUT NUMBER 000

 DESCRIPTION:
 X MAG =          Y MAG =

                 CO-ORDINATES          SIZE
                 HORIZ   VERT    HORIZ   VERT   COLOUR    PRIORITY
 BACKGROUND

 *END*
```

and then:

```
                    TINT BLOCKS AND BORDERS
            ORIGINAL CO-ORDINATES FOR LAYOUT NUMBER 000

 DESCRIPTION:
 X MAG =          Y MAG =

                 CO-ORDINATES          SIZE
                 HORIZ   VERT    HORIZ   VERT   COLOUR    PRIORITY
 BACKGROUND

 *END*
```

On pressing [E] the VDU displays:

```
                    TINT BLOCKS AND BORDERS
                DROPIN DETAILS FOR LAYOUT NUMBER 000

DESCRIPTION:

ANALYSE DROPINS   (T=TOP B=BOTTOM L=LEFT R=RIGHT)

DROP  TINT    * ORIGINAL CO-ORDINATES *      * GRIP *        JOB FILE
 IN   BLOCK   T/L X   T/L Y   B/R X   B/R Y   T B L R          NAME

*NO DROPINS*


DISK DROPINS      (T=TOP B=BOTTOM L=LEFT R=RIGHT)

DROP  TINT   DISK  IMAGE  *IMAGE SIZE*  *OFFSET*  *GRIP*  LAT
 IN   BLOCK  PACK  NO.    HOR    VER    HOR  VER  T B L R  REV
                                                          NEG
*NO DROPINS*
*END*
```

On pressing [X] the VDU displays each of the layout details and they are printed out in sequence.

7.7.19 Setting up the Scanner and OPTION Z Exit Set-up

Now that the mask data has been entered at the VDU, a certain amount of preparation needs to be done on the analyse unit.

1. Each original should have a number so that it can be assigned to a tint block. Ensure that the numbers and descriptions are noted down for each original.
2. Mount the originals so that they read correctly to the layout (Emulsion down usually), and that they are mounted either correct reading or sideways format.
3. Remember to select the **[LAT REV]** button unless the original is to be produced reversed in the final page. Check the Pos/Neg requirement.
4. Enter the scanning area required on the first original by using the **[POSN]** button as normal, entering the top-left and bottom-right co-ordinates.
5. Set up the editorial controls for the first original.
6. Store the data into a job file with the same description as it has or will have in the layout including Latrev.

7. Store all job data in the **ORIG** mode **not SEP**.
8. Set up all other job files in the same way.

Once all set up data for the originals has been stored and the entry of layout data has been completed, press [Z] to exit from the set-up phase. The VDU will then display the tints and borders 'Handler' screen again.

If you have not saved the layout currently in memory, the VDU will ask:

```
DO YOU WISH TO SAVE THIS LAYOUT ?
```

If you press [Y], then the save layout facility (see OPTION H) will be called, otherwise the message:

```
LAYOUT SAVED IN 999 ANYWAY
```

will be displayed, thus forcing every layout to be saved.

Layout 999 will be overwritten on completion of the next layout unless an explicit save is done.

7.7.20 Exposing the Layout

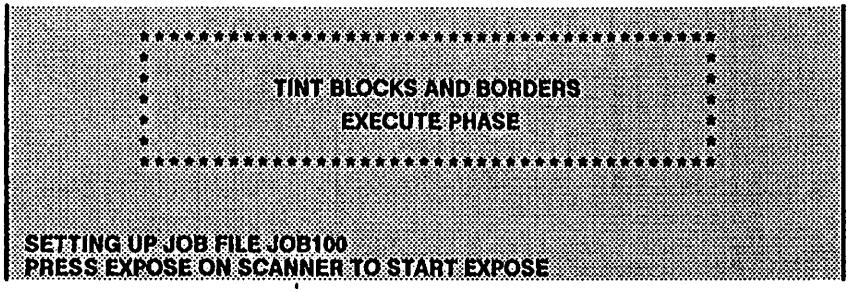
When you press [E] on the tints and borders Handler screen (see Section 7.7.3) the VDU will display:

```
          THIS SCREEN DEFINES THE OVERALL EXPOSURE RESULT

          LAYOUT NUMBER              (1 - 999)      999
          FORMAT              (1#, 2H, 2@, 4@)      4@
          COLOUR                     (C,M,Y,B)      C
          NEGATIVE                       (Y/N)      N
          LATREV                         Y/N)       N
          DROPIN START NUMBER                       0
          MANUAL EXPOSE                  (Y/N)      N

*HOME KEY TO CONTINUE
```

When you have entered the correct exposure details on the screen, press **[HOME]**. The VDU will display:



Press:

followed by:

or

Exposure will then commence.

When the exposure is completed, the VDU will display the tints and borders 'Handler' screen again. If you wish to return to the Level One Menu, press **[ESC]**.

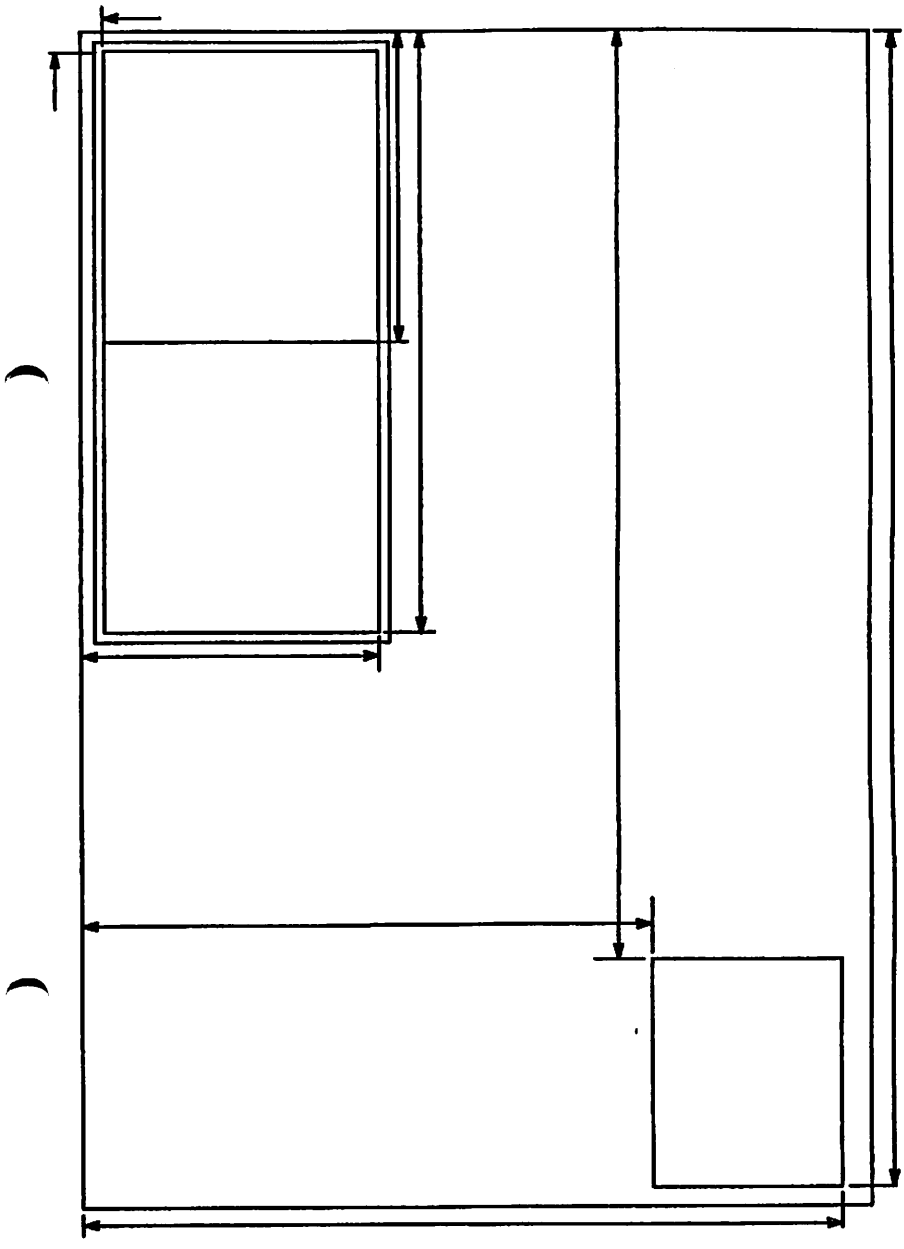


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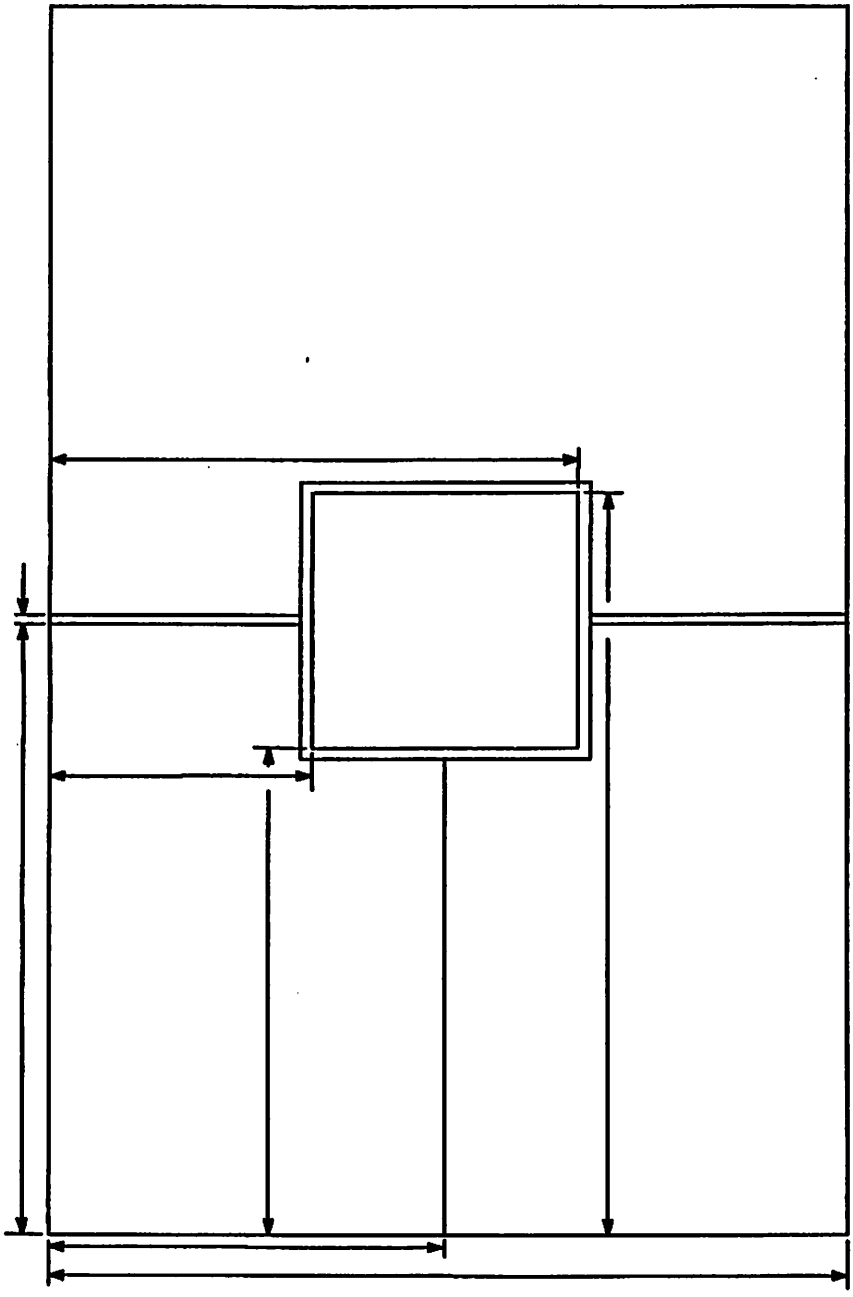
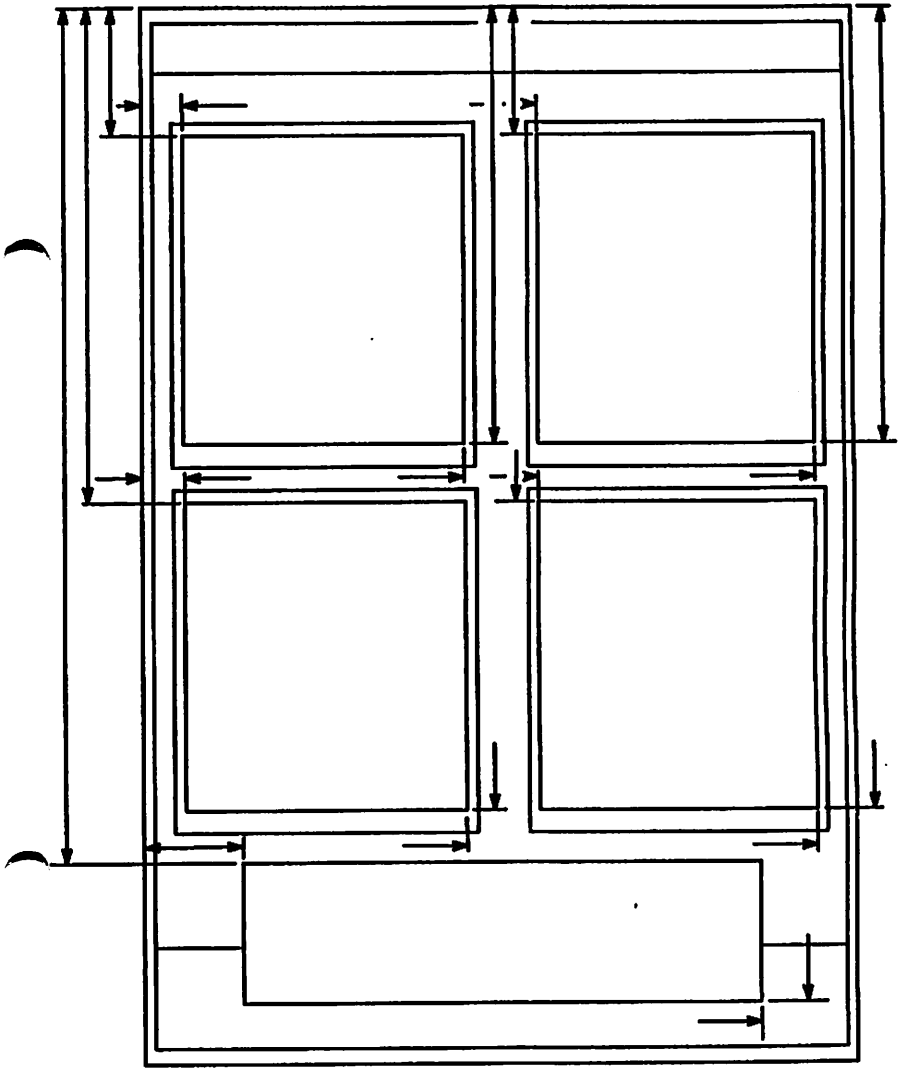
Figure 7.4(a) Dimensioning Example 1



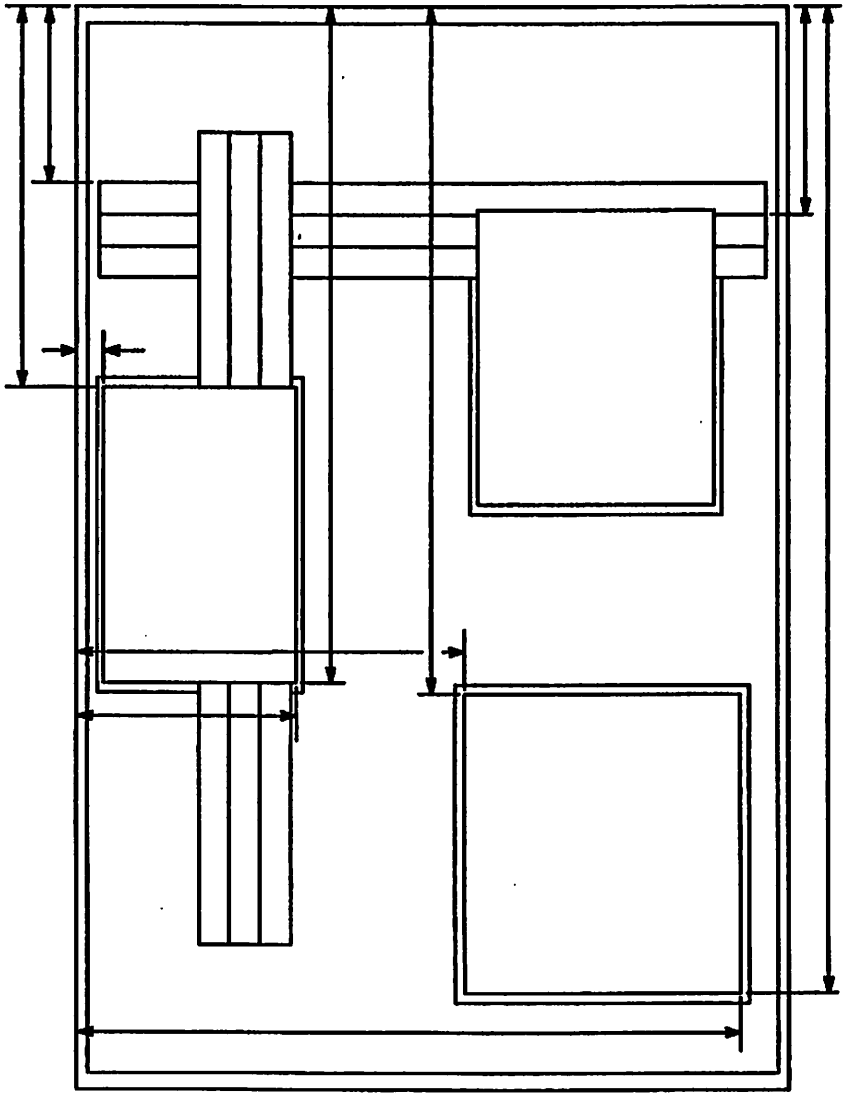
8690

Figure 7.4(b) Dimensioning Example 2



8690

Figure 7.4(c) Dimensioning Example 3

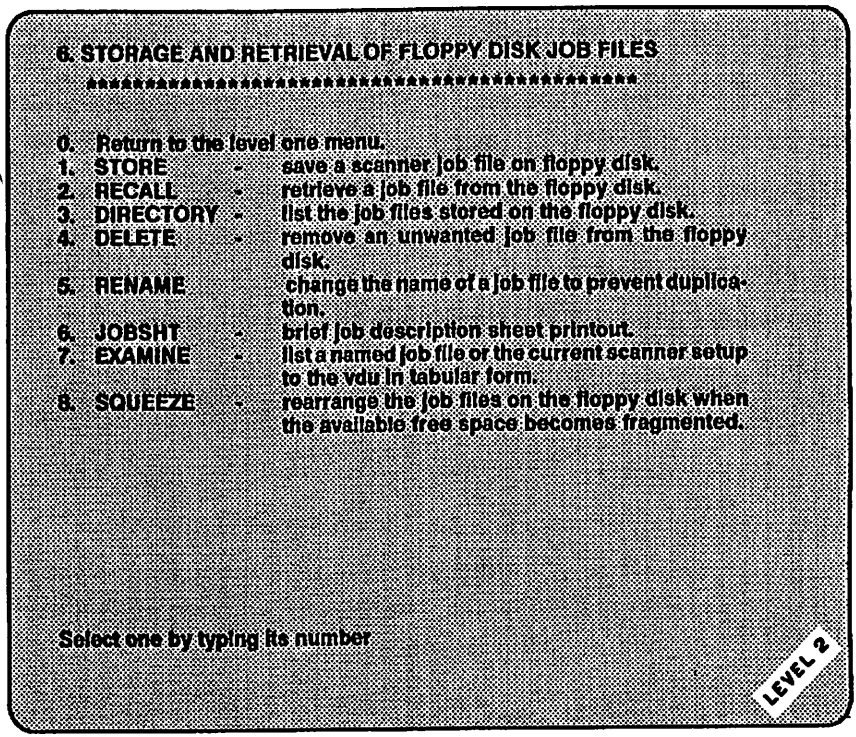


8690

Figure 7.4(d) Dimensioning Example 4

7.8 STORAGE AND RETRIEVAL OF FLOPPY DISK JOB FILES

To obtain the Storage and Retrieval Menu, select Option 6 from the Level One Menu.

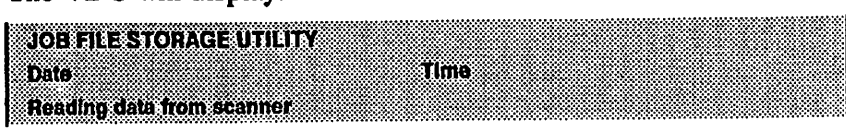

6. STORAGE AND RETRIEVAL OF FLOPPY DISK JOB FILES
0. Return to the level one menu.
1. STORE - save a scanner job file on floppy disk.
2. RECALL - retrieve a job file from the floppy disk.
3. DIRECTORY - list the job files stored on the floppy disk.
4. DELETE - remove an unwanted job file from the floppy disk.
5. RENAME change the name of a job file to prevent duplication.
6. JOBSHT - brief job description sheet printout.
7. EXAMINE - list a named job file or the current scanner setup to the vdu in tabular form.
8. SQUEEZE - rearrange the job files on the floppy disk when the available free space becomes fragmented.
Select one by typing its number
LEVEL 2

Floppy disks must be formatted and initialized before use. (See Sections 7.4.1 and 7.4.2.)

7.8.1 STORE - Saving A Job File

To save a Job File, select Option 1 - STORE.

The VDU will display:



then:

```
Currently defined files are

Job File name?
```

Enter a name of up to six characters and press **[RETURN]**.

The computer will check the name against those in the list. If there is duplication, the VDU will display:

```
CAUTION - File already exists on this disk overwrite it [Y,N]?
```

If you press **[N]**, the VDU will again ask:

```
Job File name?
```

Enter a new name if you do not wish to overwrite the existing file name, and press **[RETURN]**.

Alternatively, if you press **[Y]**, the VDU will display:

```
The following details assist job file identification in later work, characters in excess of
the number in brackets are ignored. Questions may be skipped by pressing
[RETURN].

File Description [40] -
```

Enter the photographic details of the file and press **[RETURN]**.

Step through the list of questions concerning scanner parameters which are not stored in the scanner memory. End each answer with **[RETURN]**.

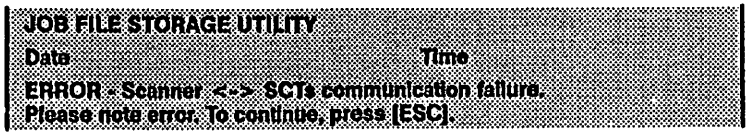
```
File Description [40] -
Type of Original [20] -
Analyse Aperture [10] -
Analyse Focus Setting [10] -
Screen Set Used [20] -
Transfer Completed.
```

When the question and answer sequence is completed the new job file will be created on floppy disk and the VDU will display:

```
Transfer completed.
```

The Level One Menu will re-appear.

Note 1: If the scanner is not in communication with the system computer (data terminal) the VDU will display:



This may be due to the scanner having been switched off or a cable disconnected. If the fault is not known or is not easily corrected, call the Crosfield Service Engineer.

Note 2: If the scanner is busy with an analyse/expose operation, the VDU will display:

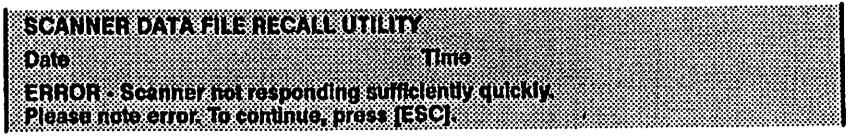
Note 2: To avoid the risk of corrupting picture information, you should not attempt to transfer data from the scanner to the data terminal while the analyse/expose operation is in progress.

When the current scanner operation is finished, press the spacebar.

7.8.2 RECALL - Retrieving A Job File

To retrieve a Job File from a floppy disk, select Option 2 - RECALL.

If the scanner is not in communication with the system computer (data terminal), the VDU will display:


SCANNER DATA FILE RECALL UTILITY
Date Time
ERROR - Scanner not responding sufficiently quickly.
Please note error. To continue, press [ESC].

This may be due to the scanner having been switched off or a cable disconnected. If the fault is not known or is not easily corrected, call the Crosfield Service Engineer.

1. If the scanner is communicating with the system computer the VDU will display:

```
Currently defined files are

Job File name?
```

The names of all job files which are on the customer floppy disk are listed. Select one of the names from the list, then press **[RETURN]**.

2. If you misspell a name or type a name which is not on the disk, the VDU will display:

```
ERROR - File does not exist on this disk.
```

followed by:

```
Job File name?
```

Re-enter the name.

The chosen job file name and description, followed by the scanner parameters which are not stored in the scanner memory are displayed.

```
CAUTION - All scanner colour edit data, except output calibration, will be lost.
```

followed by:

```
Send files to scanner [Y,N]?
```

3. To send the job file to the scanner memory, press **[Y]**.

```
Transfer complete.
```

To choose another file, press **[N]**.

```
Choose another file [Y,N]?
```

Note: If you cannot find a suitable file on the current disk, you have the option to change the customer floppy disk at this point.

To list the names of all job files on the customer floppy disk, press **[Y]**.

```
Job File name?
```

The Level One Menu will re-appear.

To end the sequence, press **[N]**.

7.8.3 DIRECTORY - Listing Job Files

To list floppy-disk Job Files , select Option 3 - DIRECTORY.

```
JOB FILE DIRECTORY LISTING FACILITY
Date                                    Time
To continue, Press [Spacebar].
```

A list of the names of all job files which are on the customers floppy disk is shown.

To return to the Level One Menu, press **[Spacebar]**.

7.8.4 DELETE - Deleting A Job File

To delete a Job File from a floppy disk, select Option 4 - DELETE.

```
JOB FILE DELETION UTILITY
Date                                    Time
Job files on this disk are:
Job File name?
```

The names of all job files on the customer floppy disk are displayed.

Enter the name of the job file you wish to delete and press **[RETURN]**.

If you misspell a name or type a name which is not on the disk, the VDU will display:

```
ERROR - File does not exist on this disk.
```

and will again ask:

```
Job File name?
```

CAUTION

Pressing [Y] instantly deletes the file.

When you type the correct name, the VDU will ask:

```
Delete file . . . . . are you sure [Y,N]?
```

To implement the deletion, press **[Y]**.

Whether you press **[Y]** or **[N]** the VDU will always ask:

```
More files to delete [Y,N]?
```

To return to the Level One Menu, press **[N]**.

To display the names of all job files on the customer floppy disk, press [Y].

```
Job files are on this disk are:
Job File name?
```

7.8.5 RENAME - Changing A File Name

To change a Job File name, select Option 5 - RENAME.

```
JOB FILE RENAMING UTILITY.
Date                                Time
Job files on this disk are:
Current Job File name?
```

The names of all job files on the customer floppy disk are displayed.

Enter the name of the job file you wish to rename and press [RETURN].

If you misspell a name or type a name which is not on the disk, the VDU will display:

```
ERROR - File does not exist on this disk.
```

and will again ask:

```
Current Job File name?
```

When you type the correct name, the VDU will ask:

```
New Job File name?
```

Enter the name of the new job file followed by pressing [RETURN].

```
Rename file ..... are you sure [Y,N]?
```

To rename the file, press [Y].

```
.....renamed to .....
More files to rename [Y,N]?
```

If you press [Y], the VDU will display:

```
Job files are on this disk are:
Current Job File name?
```

The names of all job files on the customer floppy disk are displayed.

Alternatively, if you press [N], the Level One Menu will re-appear.

7.8.6 JOBSHT - Printing Out A Job Description

To obtain a print-out of a Job Description, select Option 6 - JOBSHT.

```
JOB-SHEET DISPLAY ROUTINE
Select data source:   from scanner, type [S]; from floppy disk type [F].
To exit, type [M] or press [ESC].
```

Press [S] or [F] as required

```
Reading scanner data
```

```
Do you also require a Job-Sheet print-out [Y,N]?.
```

Press [Y] or [N] as required.

```
                    LEVEL 1. (JOB SHEET)
Magnascan 6XX      Program Version:      JV-type
Job Description:
Job Name:          Creation DATE, TIME:

Analyse Turret:  Enlargement: Hor.      Vert.      USM:

Format:    Format Posn.: C=   , M=   , Y=   , K=    Pos, Neg:
Sep'n Type:      Cylinder in use:          Lateral Reversal:
Scan Rate:    Screen Ruling:     Lines per mm    Dot Shape:

CVs in use:>
      Grey Balance                    Colour Correction
      Output Calibration              UCR
      Catchlight                      Luminosity
      Tone Curve                      Permanent Tone Boosts
      Cast 1                          Cast 2
      Limits                          Autobalance
      Black Printer                   Breakpoints, etc.

Input Size:    Width:      mm   Output Size:  Width:      mm
               Height:     mm                 Height:     mm

To continue, press [Spacebar].
```

7.8.7 EXAMINE - Displaying A Job File

Note: This sequence can be aborted at any time if [ESC] or [M] is pressed. The data and time will be displayed/printed out when scanner data is examined.

To display a Job File or the current scanner set-up select Option 7 - EXAMINE.

```
JOB FILE OR SCANNER DATA EXAMINE ROUTINE

Job Data Source: for Scanner, type [S]; for Floppy Disk, type [F].
```

1. To obtain a display of data stored as CVs and JVs in the scanner memory, press **[S]**.

   ```
   Entire data print-out required [Y,N]?
   ```

   To print out all the scanner data, press **[Y]**.

   To display the first block of data, press **[N]**.

   To step through the blocks of data, use the **[Spacebar]**.

   To print out a displayed block, press **[P]** and respond **[Y]** to the prompt.

   The blocks of data are:

   1B FORMAT.

   1C USM SETTINGS.

   2A RANGE and TONE.

   2B LUMINOSITY DATA.

   3 COLOUR CORRECTION.

   4 CAST, TONE COLOUR and PASTEL CORRECTION.

   5 GREY BALANCE and PRINT DENSITY data.

   6 PCR and BLACK.

   7 CATCHLIGHT and LIMITS.

   8 OUTPUT CALIBRATION JV.

   9 VIGNETTE SETTINGS.

   (Data block 1A, GENERAL STATUS PARAMETERS is only obtained when examining the floppy disk, as in Step 2 below.)

2. To obtain a list of all job files stored on the customer floppy disk, press **[F]**.

```
JOB FILE OR SCANNER DATA EXAMINE ROUTINE.
Job files available on this data floppy disk are:
Job File name -
```

The names of all job files on the customer floppy disk are displayed.

Enter the required file name, and press **[RETURN]**.

If there are no job files on the data disk, the VDU will display:

```
ERROR - No job files on this disk.
```

Insert another customer floppy disk and press **[F]**.

If you misspell a name or type a name which is not on the disk, the VDU will display:

```
ERROR - Job file not found on this disk.
```

and will again ask:

```
Job file name?
```

When you type the correct name, the VDU will ask:

```
Entire data print-out required [Y,N]?
```

To print out the job file data, press **[Y]**.

When the print-out is finished, the Level 1 Menu will re-appear.

To display the GENERAL STATUS PARAMETERS block of data, press **[N]**.

```
1A  GENERAL STATUS PARAMETERS          JV-type 3
Job Description:
Creation Date/Time:                    Program Version
Type of Original:
Analyse Aperture:
Screen Set Used:
```

Continue to use the space-bar to display successive blocks of data.

If at any stage you wish to print-out the page currently displayed, press **[P]** and then **[Y]** to the prompt.

3. To end the sequence and return to the Level 1 Menu, press **[ESC]** or **[M]**.

7.8.8 SQUEEZE - Tidying Disk Space Usage

To Rearrange the Job Files on the floppy disk or the current scanner set-up, select Option 8 - SQUEEZE.

```
This program will squeeze the job floppy.
Do you wish to proceed [Y,N]?
```

CAUTION

Job Files will be lost if the operation is interrupted.

Press: **[Y]**.

All the job files left on the customer floppy disk will be re-written leaving no gaps between files, thus vacant storage space will be provided at the end of the disk.

When the process is finished, the VDU will display:

```
To continue, press [Spacebar].
```

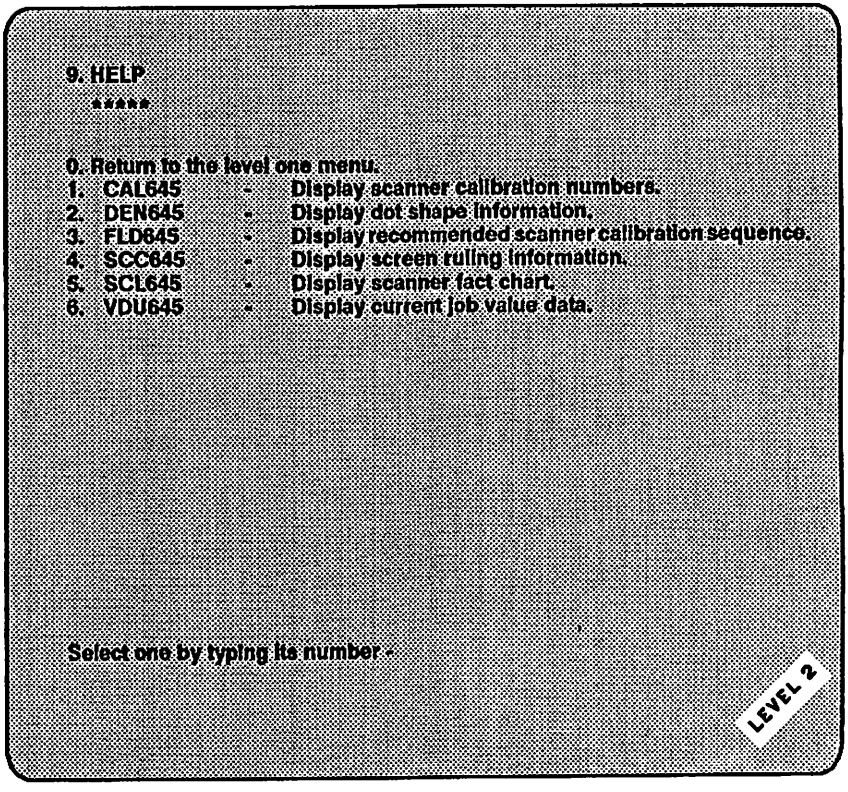
To return to the Level One Menu, press **[Spacebar]**.

7.9 GALAN RELATED ACTIVITIES

To perform Galan Related Activities, select Option 7 from the Level One menu. These options are fully described in the Galan Operator's Manual, 6700-0210.

7.10 HELP

To obtain help displays, select Option 9 - HELP from the Level One Menu.


9. HELP
*****
0. Return to the level one menu.
1. CAL645 - Display scanner calibration numbers.
2. DEN645 - Display dot shape information.
3. FLD645 - Display recommended scanner calibration sequence.
4. SCC645 - Display screen ruling information.
5. SCL645 - Display scanner fact chart.
6. VDU645 - Display current job value data.
Select one by typing its number -
LEVEL 2

On displays with more than one screen, press **[N]** for the next page, or **[P]** for the previous page. To return to the Level One display, press **[ESC]**.

CHAPTER 8

CARE AND MAINTENANCE

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CHAPTER 8

CARE AND MAINTENANCE

8.1 SYSTEM CARE

CAUTION

There must be NO SMOKING, EATING OR DRINKING in scanner rooms.

The equipment requires very little maintenance.

Daily

1. Ensure that the environmental conditions are within the permitted ranges.
2. Check the cleanliness of the area.
3. Check that the cooling fans are operating properly.

8.2 ANALYSE UNIT

8.2.1 General Care

The Magnascan 626, 636 and 646 Analyse Units are designed to require minimal maintenance and servicing. Some parts are sealed for safety and cleanliness and must not be touched.

The inside of the unit, under the lids, should be kept as free as possible from dust and dirt. The ventilation grilles must be kept clear to allow good ventilation.

The analyse unit will give best results if it is left switched on as much as possible, even overnight and at weekends. It is advisable to leave the analyse head pointed at an area of neutral density of approximately 0.9. This will extend the life of the photomultipliers.

Cylinders are manufactured to close tolerances and must be handled carefully to avoid damaging them.

Analyse cylinders are easily scratched, so it is strongly recommended that the operator removes any rings, cuff-links and watches that might come into contact with the cylinder. All hard or sharp objects such as combs, keys, etc., should be kept away from the cylinders.

Cylinder cleaning methods are described in Section 4.3.1. Ensure that the safety procedures are followed.

8.2.2 Changing The Xenon Lamp & Top Lead

Note: It is possible that the lamp may burst in use. If this occurs the service engineer should be called to replace the lamp and rectify any further damage that may have been caused.

Indications of Failure

There are two main indications that the lamp is failing and must be replaced.

- If there are streaks on the film and it is certain that they are not caused by the film processing, the xenon lamp may be the cause.
- If there is insufficient light for autobalance, this is probably due to falling light output from the lamp.

In addition, if ozone is generated by a xenon lamp the lamp must be changed immediately. If this condition arises when a new lamp has been fitted, assuming it has been warmed up, ensure that the correct type has been fitted.

When streaking occurs and it is certain that it is not caused by the film processing or the xenon lamp, adjust the lamphouse optics as described in Section 4.4.2.

Essential Notes on Safety

Operators can change the xenon lamp when necessary. This is a simple procedure but certain safety precautions must be strictly observed.

The lamp is run at high pressure and temperature. It emits a considerable quantity of ultra-violet light.

- It must not be handled when hot or viewed directly when lit.
- The lamp must be switched off and allowed to cool for at least half an hour before being handled.
- A protective headguard with visor, and gauntlets, must be worn when handling the lamp. Use of gauntlets will also prevent contamination of the quartz envelope of the lamp by finger grease.
- A plastic safety cylinder must be placed around the lamp when it is to be removed from or replaced in the lamphouse.

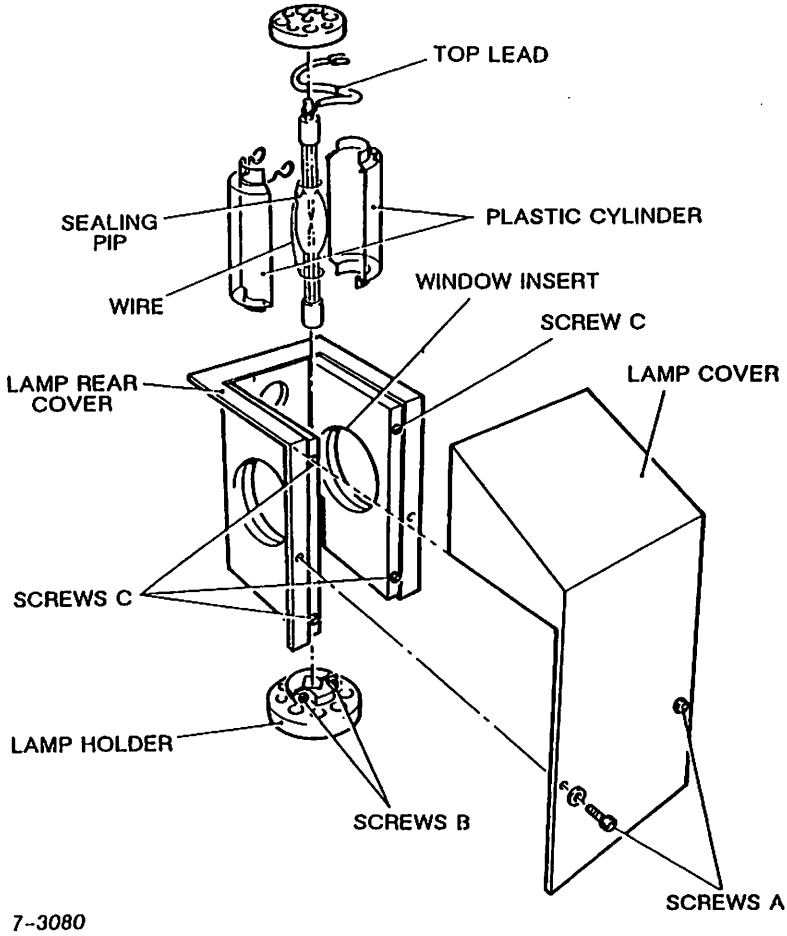

Figure 8.1 Xenon Lamp Assembly

8.2.3 Replacement of a Failing Lamp

1. Switch off the analyse **SCANNER** switch. Remove the bottom left-hand front panel of the analyse unit to gain access to the xenon-lamp supply.
2. Switch off the lamp by means of two switches. One is on the operator control panel, the other is on the XLS front panel. (Switch marked **MAINS ON.**)
3. Allow half an hour for the lamp to cool.

WARNING

Before proceeding with the next Step, put on the headguard, visor and gauntlets.

4. Use the Allen key to remove the two screws A in Figure 8.1. Take off the lamp cover.
5. Place the two halves of the plastic cylinder around the centre of the lamp and secure with the spring clips.
6. Taking care not to knock the lamp, pull the top lead off the tag behind the lamp. Slip-joint pliers, Part No. 9990-4013, may be used.
7. Loosen two screws B with the Allen-key driver, Part No. P9990-3411, whilst holding the lamp steady in its plastic cylinder. Remove the lamp and place it on a working surface.

CAUTION

Do not twist the lamp when removing or replacing the top lead.

8. Hold the positive, metallic end of the lamp with one wrench and unscrew the top connector with the other wrench. Remove the lamp top lead. Place the lamp in its protective box.
9. Inspect the top lead. The insulation will have deteriorated in use. If the insulation is in poor condition, the lead should be replaced. If the insulation is in good condition, then inspect the ring terminal at the lamp end of the top lead. Clean the terminal with fine emery cloth if necessary, to ensure good electrical contact when replaced on the new lamp.
10. Take a new lamp with its protective plastic cylinder in place. Fit the top lead to the end of the lamp marked + (positive end). Hold this end firmly with one wrench whilst tightening the top connector with the other wrench.
11. With the plastic cylinder still in place, fit the lamp into the lamp base. Make sure that:

- The positive terminal is uppermost.
- The lamp sealing pip is facing the back of the lamphouse.

Tighten two screws B with the Allen key, whilst holding the lamp steady in its plastic cylinder.

12. Fit the top lead to the tag behind the lamp. Remove the spring clips and two halves of the plastic cylinder from around the lamp.
13. Replace the lamp cover and secure with two screws A.

CAUTION

Damage to the electronics unit may result if the lamp is switched on when the scanner is on.

14. Ensure that the **SCANNER** switch on the control panel is still off.
15. Switch on the lamp as follows:
    a) Operate the **LAMP** switch on the operator control panel.
    b) Switch the **MAINS ON/OFF** switch on the XLS front panel to on.
    c) Momentarily depress the **LAMP START** push-button switch on the XLS front panel. Do not keep the switch depressed, as this may cause damage to the XLS.

    The lamp starter will make a noise for about one second, after which the lamp should light. The **MAINS ON** indicator lamp should also light. If the lamp does not light, press the button again, after waiting at least five seconds. Repeat until the lamp lights. Most lamps light the first time but some may require two or even three attempts, especially when cold and/or new. If the lamp fails to light, turn off the **LAMP** switch on the control panel. Check that the lamp is correctly fitted.
16. When the lamp lights, switch on the **SCANNER** switch on the control panel.
17. Thirty minutes after the lamp has lit, adjust the lamphouse optics controls to achieve optimum light output.
18. The luminous intensity of a new lamp will change rapidly during its first half hour of life, with a slower variation during the next two or three hours. After two days, its intensity will become stable. Repeat the lamphouse adjustment every few hours until the lamp is stable.
19. In many countries the xenon lamps are guaranteed for 1,000 hours. If they fail before this time a refund can be obtained on receipt of the failed lamp in its original packaging. Hence the packaging of a new lamp should be kept in case of premature failure. It is suggested that the packaging be placed in the front right-hand vertical member of the frame.

WARNING

The protective headguard with visor and the protective gloves must be worn when performing the following procedure. The lamp, is highly pressurized.

20. The old lamp should be destroyed in the following manner. It should be placed in a thick cardboard box or Jiffy bag and smashed with a hammer.
21. Align the analyse head.

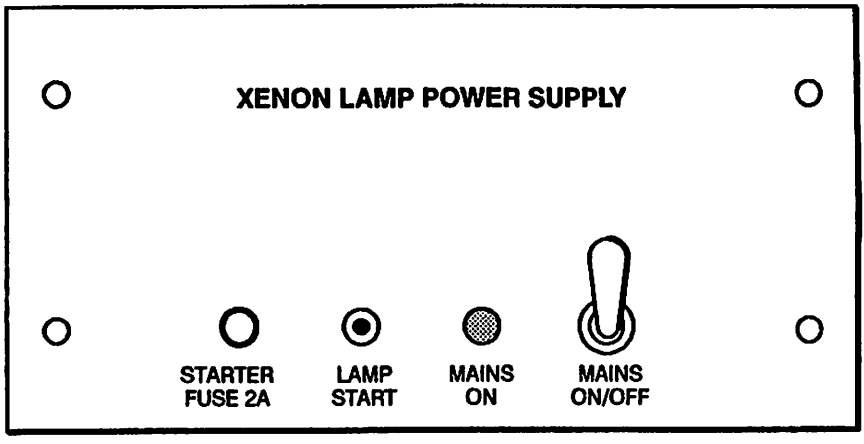

Figure 8.2 XLS Front Panel

8.2.4 Routine Maintenance

The execution of certain regular procedures will help to maintain first-class scanner performance. They are described below.

Daily

Check that the two cooling fans mounted together on the rear panel of the analyse unit are operating.

Weekly

Adjust the lamphouse optics.

Clean the inside of the analyse cylinders with anti-static fluid.

Clean the analyse lens with a cotton bud and some lens cleaner.

Inspect the centre optics lenses. Should the collars be found to be loose, contact Crosfield Electronics.

Lubricate the leadscrew by applying one drop of Maccurat 32 oil at each end of the leadscrew and one drop in the middle.

8.3 EXPOSE UNIT

8.3.1 General Care

The Magnascan 626, 636 and 646 Expose Units are designed to require minimal maintenance and servicing. Some parts of the scanner are sealed for safety and cleanliness and must not be touched.

The inside of the unit, under the lids, should be kept as free as possible from dust and dirt. The ventilation grilles must be kept clear to allow good ventilation.

The Expose Unit will give best results if it is left switched on as much as possible, even overnight and at weekends.

8.3.2 Routine Maintenance

The execution of certain regular procedures will help to maintain first-class scanner performance. They are described below.

8.3.3 Daily

Check that the laser cooling fan in the expose unit is audible. The laser fan exhausts warm air through flexible ducting to the outside of the darkroom. If this ducting is damaged or missing, the darkroom temperature will rise. Call the CEL Service Engineer to replace the ducting. If the ducting is crimped so as to reduce the exhaust flow, the laser will overheat, causing the laser thermal trip switch to switch off the laser.

8.3.4 Weekly

Lubricate the leadscrew: apply one drop of Maccurat 32 oil at each end of the leadscrew and one drop in the middle.

8.3.5 Three-monthly

Check the laser air-filter (Pt. No. P7503-0500) at the right-hand end of the expose optics unit. If no replacement is available, the dirty filter should be washed thoroughly with detergent and water.

8.4 SDT

8.4.1 General Care

Regularly clean the exterior with a damp lint-free cloth. Dust around the keys with a soft brush. Remove smudges from the screen and exterior with conventional spray cleaners. Be careful not to scratch the screen.

WARNING

Do not use petroleum-based cleaners as they are hazardous and will also damage the printed surfaces. Do not use Freon cleaners, alcohol or ammonia.

Regularly check the keys for freedom of movement. See if the brightness of characters displayed on the screen has significantly diminished. Contact the Crosfield Service Engineer if electrical or mechanical adjustment is necessary.

The Printer should be protected from direct sunlight, dust, mechanical shock, heat sources and high humidity.

Clean the Printer with a soft brush to remove paper, dust and particles, every three months. Wipe the exterior surface of the Printer with a cloth dampened with a mild detergent and water.

Care and maintenance of the floppy-disk unit is described in the next Section.

8.5 FLOPPY DISK UNIT

8.5.1 Care of Floppy Disks

The disk unit uses soft-sectored disks only. To verify that a disk is soft-sectored, rotate the Mylar disk inside the envelope whilst looking through the index mark access hole. If only one index hole is punched in the disk, the disk is soft-sectored. (Hard-sectored disks have two or more holes.)

The following rules on handling should be observed to prevent unnecessary loss of data or interruption of operation:

1. Do not touch the exposed disk surface.
2. Keep the disk away from heat and sunlight.
3. Do not use rubber bands or paper clips on the disk.
4. Do not expose the disk to magnets or tools that may have become magnetized.
5. Keep disks stored in their envelopes. When not in use, disks should be stored vertically in a file box.
6. Do not write on the disk label with a pencil or ball-point pen. Use a fibre-tip pen.
7. Do not bend or fold the disk.
8. Do not place heavy objects on the disk.
9. Do not use solutions like alcohol, thinner or Freon to clean the disk.
10. Do not use erasers.
11. Do not lay the disk on top of a terminal or computer.
12. Do not smoke, eat or drink around the disks.
13. Put the identity label in the right place. Do not layer labels.
14. When inserting the disk into drive unit grasp the disk by its upper edge.

8.5.2 Environment

Temperature, humidity and cleanliness may affect the reliability of disk units and disks.

Temperature - the operating ambient temperature should be in the range 10°C to 51°C (50°F to 124°F). The storage temperature range is -40°C to 51°C (-40°F to 124°F).

Humidity - at low humidity (dry air), static electricity can be generated when the read/write head touches the disk. A voltage may build up so that an electrical discharge occurs, causing data errors. At high humidity (moist air), the disks absorb moisture and expand. Errors in read/write head tracking may cause data errors.

Cleanliness - is essential wherever disks are stored, handled and used. Store disks in areas free of dust, corrosive chemicals and magnetic fields.

8.6 CDC 300 MBYTE DISK DRIVE UNIT

8.6.1 Cleanliness

A very high standard of cleanliness is essential for reliable, trouble-free operation of the drive unit. Even microscopic particles of dust or smoke between heads and disk will cause data errors. The room containing the unit must be kept thoroughly clean, i.e. vacuum cleaned regularly, then all surfaces cleaned with a damp cloth or mop. Rooms must not contain carpets or curtains. There should be no smoking, eating or drinking in the drive unit room. No aerosol sprays should be used.

Keep the unit's access cover closed and its air blower going whenever possible. Check that the cover seal is compressed slightly when the cover is closed, so that air is not drawn into the unit through gaps between cover and seal. Keep the unit's outside surfaces clean, using a soft cloth dampened with media cleaning solution. (Reagent-grade hydrogenated hydrocarbon/alcohol mixture, CDC part no. 95033502.)

8.6.2 Temperature and Humidity

The temperature of the room should be between 18°C and 22°C. If the temperature should rise to 26°C or higher, the drive unit should not be used.

Humidity should be in the range 40% to 60% (non-condensing). Low humidity allows build-up of static electricity, with risk of discharges causing data errors. High humidity leads to condensation again causing data errors.

8.6.3 Disk Pack Care

The disk pack is a high precision assembly. Special effort is made during manufacture to provide a disk surface:

- smooth enough to form a uniform and reliable air cushion for the normal flying height,
- flat enough to keep variations in flying height to a small percentage of the nominal value.

Both of these conditions are necessary for reliable data reading and writing. It is therefore very important that great care be taken in handling the disk pack to avoid subjecting it to any unnecessary physical stress.

- Ensure that the clean area environment satisfies the conditions stipulated.
- Always handle disk packs with care.
- Ensure that dust covers and bases are fitted when packs are not in the disk drives.
- Ensure that disk pack covers are cleaned regularly.
- Do not use disk packs that have cracked dust covers, or worn base seals.
- Do not lean on, or place anything on the disk pack.
- Do not place disk packs on top of disk drives.
- Do not subject disk packs to heat, sunlight, or dirt.
- Keep strong sources of magnetism away from the disk pack and disk drives.

  THIS CAN DAMAGE BOTH DISK AND DRIVE.
- Store packs upright, not more than two high.
- Store packs in the special cabinet when not in use.
- Before use, always purge disk packs by letting them run in the disk drive for at least five minutes with the read/write heads retracted.
- Allow at least two hours for temperature stabilization before using disk packs newly brought into the area.
- Never operate a disk drive with the pack access door open.
- Do not allow a disk pack to rest on or touch any other object, if its bottom cover is removed. If a pack is dropped, even a few centimetres, it **must not** be loaded into a drive unit. The damage done to the drive will cost 10 to 15 times the cost of the pack.
- Write the label before it is stuck to the pack. Use a pen or felt tip marker that does not produce loose residue. Never use a pencil.

- Stop disk drives rotating and inform the service engineer if unusual noises are heard or if there is a smell of burning coming from a drive. This may indicate that a disk crash has occurred. DO NOT USE the disk pack or disk drive before the Service Engineer's visit. This could result in serious damage to other disks or drives.

A disk crash is the damage caused if read/write heads come into contact with the disk surface, or if particles of dirt, such as cigarette smoke, become trapped between them.

CAUTION

Failure to quarantine the drive and disk after a suspected disk crash can lead to severe damage and extensive down time.

8.6.4 Disk Pack Purge

Purging the disk pack is the operation of running the disk drive without the read/write heads engaging so as to avoid a head crash. This should be carried out for any new pack, a pack that has been on shelf for over a week, or any pack not acclimatized to the ambient temperature of the room in which the disk drive is situated.

The operational sequence is as follows:

1. Power down the disk unit by pressing the **START** switch. Press the latch and open the rear door.
2. Switch off the ±46 V circuit breaker and close the rear door.
3. Ensure that the air filter is fitted in its bracket under the front of the unit.
4. Press the **START** switch and allow the disk unit to run for at least 15 minutes. The Ready light will flash and the Fault light will be on.
5. Power down the system, press the latch and open the rear door.
6. Switch on the ±46 V circuit breaker and close the rear door.
7. Press the **FAULT** button. The Fault lamp will be extinguished and the Ready lamp will stop flashing and remain lit.

8.6.5 Routine Maintenance

Daily

1. Check that the fan on the disk unit is working. Listen for the sound and/or feel for the warm air being expelled through the rear grille.
2. Check that the temperature and humidity are in their permitted ranges.
3. Check cleanliness of the area.

Weekly

Clean the primary air filter as follows:

1. Power down the disk unit by pressing the **START** switch. Press the latch and open the rear door.
2. Pull the air filter out of its bracket under the front of the disk unit.
3. Wash the filter in mild detergent solution. Rinse the filter in clean running water, shake off excess water and allow to dry.
4. Spray the filter thoroughly with filter coat.
5. Replace the filter in its bracket.
6. Switch off the ±46 V circuit breaker by pulling it down. Close the rear door.
7. Press the **START** switch and allow the disk unit to run for 15 minutes.

   Note: The disk unit will run but the heads will not engage, eliminating risk of head crash. The Ready light will flash and the Fault light will be on. This operation is called purging.
8. Power down the disk unit. Press the latch and open the rear door.
9. Pull up the ±46 V circuit breaker and close the rear door.

The disk unit is now ready for use.

CHAPTER 9

FAULTFINDING

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CHAPTER 9

FAULTFINDING

9.1 FAULTFINDING CHART

Symptom	Cause
No response from analyse control panel.	Analyse unit switched off.
No response from expose control panel.	Expose unit switched off.
All readings in Current Value display very high.	Xenon lamp switched off.
Machine does not autobalance correctly or long autobalance sequence.	1. Xenon lamp switched off. 2. Analyse lens not properly home. 3. Analyse lens in wrong position. 4. Analyse head (spot) misaligned. 5. Incorrect analyse aperture selected. 6. Incorrect scanning lens fitted. 7. Lamphouse alignment controls not set properly. 8. Lamphouse filter knob set incorrectly. 9. Lamphouse window broken. 10. Xenon lamp failing. 11. Dirty portion of clear cylinder being used.
Cylinder Release does not operate for small cylinder.	Cylinder rests down instead of up.
Analyse traverse does not operate with cylinder removed.	Cylinder rests down instead of up.
'Illuminated' buttons do not become illuminated when pressed.	Lamps switched off. Use CAL 0 to switch lamps on.
Expose does not work	1. Low vacuum (Lith operation). 2. Expose button not pressed after obtaining good vacuum.

Symptom	Cause
32-step CAL scale incorrectly exposed.	1. Wrong scan rate chosen. 2. Wrong expose turret chosen. 3. Laser failing. 4. Wrong film in use. 5. Processor down. 6. Expose focus incorrect.
Film unexposed.	1. Laser switched off. 2. Expose turret wheel not in its detent. 3. Lid not fully closed on one of the units.
Film underexposed.	1. Expose turret wheel set incorrectly. 2. Wrong scan rate selected. 3. Wrong film in use. 4. Processor high. 5. Expose focus set incorrectly.
Pattern on film	Expose turret wheel set incorrectly for speed chosen.
Poor definition in separation	1. Analyse lens not properly focused. 2. Analyse lens not properly home. 3. Incorrect analyse aperture selected. 4. Insufficient USM. 5. Expose focus set incorrectly.
Random streaks of different expose levels superimposed on separation.	Xenon lamp failing.
Separation film is speckled.	Too much USM Sharp used on grainy original. Threshold set too low.
Separation film shows halos and lines at changes in contrast.	Too much USM Sharp applied.
'VIEW' gives dim illumination.	Reflection copy lamphouse controls not set properly.
Xenon lamp cannot be switched on at XLS.	1. LAMP switch off at control panel. 2. XLS switched off. 3. LAMP START button not operated. 4. Lamp cover not fitted properly. (Call the Service Engineer.)
Sputtering noise emanates from Lamphouse when LAMP START button is pressed.	This is normal.

Symptom	Cause
Laser cannot be started.	1. SCANNER switch on expose unit set to off. 2. LASER switch on expose unit set to off. 3. Laser power supply switched off. 4. Laser overheating - wait five minutes.

9.2 OPERATOR ERROR MESSAGES

Main Function	Error Message	Possible Cause and Solution.
LASER POWER	EXPOSE UNIT NOT CONNECTED	The expose unit is not connected or is not switched on.
EXPOSE	EXP. NOT READY	EXPOSE has not been pressed on expose keyboard.
POSITION	POSN ENTRY ERROR	The second Position has not been entered or Position entry is invalid. Perform a Datum search and enter both positions again via POSN function.
FINAL SIZE	O/P TOO WIDE O/P TOO HIGH	The ENLARGEMENT x INPUT SIZE value is greater than that allowed for the current format selection - check FINAL SIZE.
FINAL SIZE	H ERROR!	Output size has been entered to the nearest 0.1mm. Enter output size as a whole number.
ENLARGEMENT	ENLRGMT INVALID	The ENLARGEMENT value entered is outside the range allowed for the type of cylinder in use - check the valid range of 'ENLARGEMENT' allowed for large and small cylinder.
COLOUR	WRONG COLOUR OR TONAL REGION????	The edit being performed in the selected region is not allowed if the analyse head is not aimed at the selected region - check, in VIEW mode, the region being monitored and then check in which region the edit was requested.
AUTOBALANCE	ERR W:YMC B:YMC	This gives an indication as to the area where AUTOBALANCE has failed. Try AUTOBALANCE again - repeated failure in one or more channels indicates an electronic fault - consult the Service Engineer.
FORMAT	LAYOUT ERROR	A FORMAT selection has been made which is not allowed - check which FORMAT selections are allowed.

Main Function	Error Message	Possible Cause and Solution.
EW/EB	EXCESS BLACK	You have made either an EW or an EB entry, using MAN B, that is greater than the normal first printing tone or maximum shadow ink weight for the current BV/CV in use.
FILM-SAVE	O/P TOO WIDE	There is insufficient output film remaining to complete the required expose sequence on the upper half of the film. Select lower half and continue.
FILM-SAVE	U/L O/P TOO HIGH	The enlargement or required format exceeds the available vertical space on either the upper or lower halves of the film.
FILM-SAVE	U/L WIDTH ERROR	If this error message occurs when exposing on the upper half of the film, it means that an attempt has been made to expose more than 8 sets of separations therefore, continue exposure on the lower half. If it occurs on the lower half of the film it means that there is insufficient output film left. Continue on a new piece of film.
USM	I/P OVER RANGE	You have entered a value which is too high, i.e. outside the permitted range. Check the permitted range and re-enter.

9.3 MACHINE FAULT MESSAGES

These messages are only displayed when the scanner is in the expose mode. The machine may be stopped as a result of the fault. The analyse display will show, for example:

83% REM SCR.LIMT

where: 83% REM is the amount of separation yet to be exposed.

and: SCR.LIMT is the ERROR message.

Failure Message	Meaning of	Possible Cause Message
SCR.LIMT	The leadscrew is not moving.	Either analyse or expose carriage has overrun. The leadscrew, if turned by hand, will feel disengaged. Turn the screw so that the carriage moves towards the centre. The screw should re-engage. This may be an isolated fault, but report it to Crosfields, especially if the scanner has missed a service.
TMP.LIMT	Leadscrew servo overheating.	Leadscrew requires lubrication or adjustment.
A SPEED or E SPEED	The analyse or expose cylinders have not reached the required speed. Scanning will not start.	If the condition persists or shows on film, inform Crosfield.
MOD.TEMP	The modulator trip-switch has operated.	The laser is not exposing correctly, due to a modulator fault. Check laser light output.
TRANSFER FAIL!	The expose unit is not receiving correct data from the analyse unit.	An electronic fault - consult the Service Engineer if repeated failure occurs.

CHAPTER 10

REFERENCE DATA

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CHAPTER 10

REFERENCE DATA

10.1 ANALYSE SCANNER DATA

10.1.1 Scanner Fact Chart

CYLINDER	ENLARGEMENT	Analyse Aperture	Analyse Turret
	20 - 80	5	D
LARGE	20 - 40	4	D
(Transmission)	41 - 80	3	C
	81 - 200	2	B
	201 - 800	1	A
LARGE	20 - 40	4	N/A
(Reflection)	41 - 800	3	N/A
SMALL	75 - 299	2	B
	300 - 2000	1	A

Notes: The recommended minimum enlargement on M Units is 30%.

Enlargements from 2 to 20% (E) or 30% (M) are available for use at your discretion.

Use only Aperture 5 in range 20 - 80% when scanning subjects with fine edges.

10.1.2 USM Functions and Settings

				CAL 508							
	Front Panel										
	Sharp	Smooth	Black Gain	Threshold	Fringe Clip	D1	D2	Yellow Gain	Magenta Gain	Cyan Gain	Neg Gain	White Attenuator
Average Trans Settings	4/5	3/4	4	5/8	127	150/200	225/255	3/6	1/2	1	1/2	3
Big Enlargements	3/5	2/3	4	5/8	90/127	150/180	200/255	3/6	1/2	1	1	3/5
PCR	3/5	2/3	8/12	5/8	90/127	150/180	225/255	4/6	1/2	1	1	3/5
Fine Detail Sharpness	5/7	2/3	4/8	5/8	70/110	150/180	225/255	5/7	1/2	1	1/3	7/9
Fleshtones	3/5	3/4	4	5/8	90/127	150/180	200/255	4/6	1/2	1	1	3/4
Grainy Originals	2/4	3/6	4	10/15	110/127	150/180	200/255	5/7	2/3	1	1	3
Colour Prints	3/5	2/3	4/8	5/8	80/127	150/180	180/255	3/6	1/2	1	1/2	3
Water Colours	2/4	3/6	1/4	5/10	100/127	100/150	150/200	3/6	1/2	1	1	3

10.2 EDG FACILITIES

10.2.1 EDG Angle Codes and Angles

Angle Code	Description	Nominal Angles			
		1	2	3	4
0	Nominal	165	45	90	105
1	Neoscan +ve	170	50	95	110
2	Toppan +ve	15	75	120	135
3	Flexo	98	158	83	38
4	Hel Prg 4	108	162	45	45
5	Hel Prg 130	108	162	0	45
6	One Angle	45	45	45	45
7	66/96/51/36	156	96	51	36
8	M.P.D	76	23	57	147
9	Plan Film	165	45	90	105
11	Neoscan -ve	100	40	175	160
12	Toppan -ve	75	15	150	135
20	Eq. Ruling	165	45	90	105
23	Fl. Low Y	98	158	83	38
25	Neroc	108	162	0	45
28	Kavisha	75	105	23	15
33	Rubens	113	53	8	173
40	Nom. Swap	105	45	90	165
60	Eq. LPI	165	45	90	105
99	6/7	165	45	90	105
99	13X	165	45	90	105
99	1/2	165	45	90	105
99	5/9	165	45	90	105
99	2/3	165	45	90	105
99	Flexo	158	38	98	83

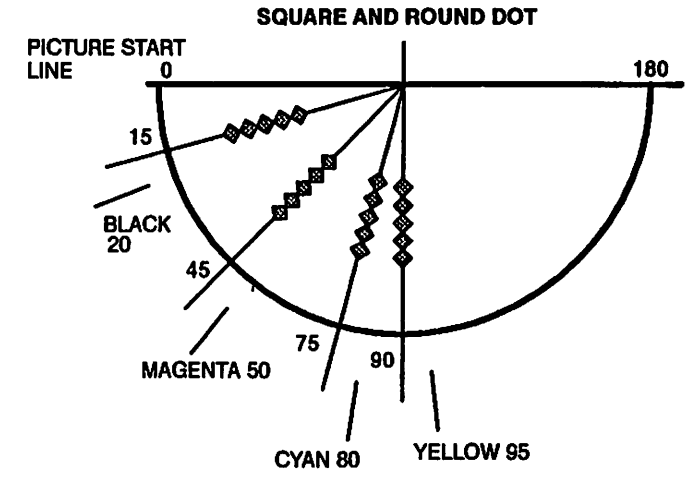
Note: The angle code, 99, covers several angle families which are not in common use.

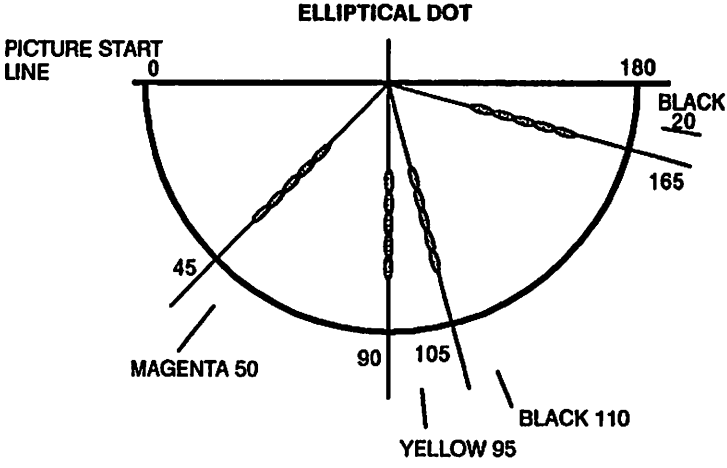
10.2.2 Nominal Rulings

Family	Angle Code	Nominal Rulings L/in (L/cm)			
		Turret A	Turret B	Turret C	Screen-Set No.
Nom.	0	146 (57)	219 (86)	292 (115)	75
		142 (56)	213 (84)	284 (112)	10
		116 (46)	174 (69)	232 (92)	11
		98 (38)	147 (58)	196 (76)	0
		86 (34)	129 (51)	172 (68)	12
		82 (32)	123 (48)	164 (64)	13
		70 (28)	105 (42)	140 (56)	14
		58 (23)	87 (34)	116 (46)	15
		50 (20)	75 (31)	100 (41)	16
		34 (13)	51 (20)	68 (27)	17
		24 (10)	36 (15)	48 (20)	18
		16 (6)	24 (10)	32 (13)	19
		12 (5)	18 (8)	24 (10)	20
		8 (4)	12 (5)	16 (7)	21
		6 (2)	9 (4)	12 (5)	22
N'Scan +ve	1	102 (40)	153 (60)	204 (80)	6
		76 (30)	114 (45)	152 (60)	27
N'Scan -ve	11	102 (40)	153 (60)	204 (80)	5
		76 (30)	114 (45)	152 (60)	28
Toppan +ve	2	115 (45)	173 (68)	230 (91)	76
		104 (41)	156 (61)	208 (82)	29
		88 (35)	132 (52)	176 (70)	45
		86 (34)	129 (51)	172 (68)	40
		70 (28)	105 (42)	140 (56)	30
Toppan -ve	12	115 (45)	173 (68)	230 (91)	77
		104 (41)	156 (61)	208 (82)	31
		88 (35)	133 (52)	177 (70)	46
		86 (34)	129 (51)	176 (68)	41
		70 (28)	105 (42)	140 (56)	32
Flexo	3	151 (60)	227 (89)	302 (119)	85
		133 (52)	199 (79)	266 (105)	84
		100 (39)	150 (59)	200 (78)	51
		86 (34)	129 (51)	172 (68)	48
		78 (31)	117 (46)	156 (62)	52
		66 (26)	99 (40)	132 (53)	53
		56 (22)	84 (34)	112 (45)	49
		42 (17)	63 (25)	84 (34)	50
Flexo low Y	23	100 (39)	150 (59)	200 (78)	58
		86 (34)	129 (51)	172 (68)	56
		78 (31)	117 (46)	156 (62)	59
		66 (26)	99 (40)	132 (53)	60
		56 (22)	84 (34)	112 (45)	57

Family	Angle Code	Nominal Rulings L/in (L/cm)			
		Turret A	Turret B	Turret C	Screen-Set No.
Hell Prg 4	4	114 (45) 86 (34)	171 (68) 129 (51)	228 (90) 172 (68)	25 26
Hell Prg 130	5	102 (41) 76 (30)	153 (61) 114 (46)	204 (82) 152 (61)	23 24
One Angle	6	86 (34) 82 (32) 72 (28) 56 (22)	129 (51) 123 (48) 108 (43) 84 (34)	172 (68) 164 (64) 144 (57) 112 (45)	36 37 38 39
66/96/51/36	7	78 (31) 68 (27)	117 (46) 102 (41)	156 (62) 136 (54)	42 43
Plan Film	9	196 (77)	294 (115)	392 (154)	2
MPD	8	148 (58)	222 (87)	296 (116)	47
Neroc	25	137 (55)	205 (82)	274 (110)	78
Kavisha	28	141 (56)	212 (85)	282 (113)	79
Rubens	33	125 (50) 109 (44) 100 (40) 77 (31)	188 (75) 164 (65) 150 (60) 116 (46)	250 (100) 218 (87) 200 (80) 154 (62)	80 81 82 83
Nom Swap	40	98 (38) 116 (45)	147 (58) 174 (69)	196 (76) 232 (92)	54 55
Eq Ruling	20	102 (40) 90 (35) 86 (34) 80 (31) 62 (24) 81 (32)	153 (58) 135 (53) 129 (51) 120 (47) 93 (37) 122 (48)	204 (76) 180 (71) 176 (69) 172 (68) 127 (50) 163 (64)	44 70 69 66 61 64
Eq LPI	60	150 (59) 125 (49) 110 (43) 100 (39) 89 (35) 87 (34) 84 (33) 80 (31) 66 (26)	225 (88) 187 (74) 165 (65) 150 (59) 133 (53) 132 (52) 127 (50) 120 (47) 98 (38)	300 (118) 250 (98) 220 (87) 200 (79) 178 (70) 175 (69) 170 (67) 160 (63) 130 (51)	74 73 72 71 68 67 65 63 62

10.2.3 EDG Zero Angle Settings





Notes: 1. Dot shape codes are,
0 = Square.
1 = Elliptical,
2 = Round,
3 = Autotypical Gravure

2. These angles apply to all EDG scanners. Correct when viewed through the back of the scanned film.

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10.3 OPERATOR'S CALIBRATION NUMBERS

The following list of Calibration numbers, including the associated Recall and Store numbers, has been compiled for the use with Magnascan 626, 636 and 646 scanners.

Description	Command Access	Recall	Store
Panel Light On/Off	0		
32-Step Calibration	1	101	201
Permanent Tone Boosts	10	110	210
Black Printer Data	11	111	211
Colour Correction	12	112	212
Grey Balance	13	113	213
PCR		114	214
Cast 2		115	215
Cast 1		116	216
Catchlight		117	217
Limits		118	218
EDG Data		119	219
Bottom Density	20)		
Top Density	21)	120	220
Cast Data (Screen)	25)		
Auto EW	27)		
E/W Via Keypad	28		
E/B Via Keypad	29		
All CVs In Use	30	130	230
Single CVs In Use	31		
Single CVs Edited	32		
Picture Distortion	33		
Separation Gap for Expose Hold	34		
Start of 2nd Separation Scan	35		
Quadrant Print-out	37		
Negative Black Printer	38		
Micro Enlargement	39		
View Scan Spot	40		
Insert A Patch	41		
Insert B Patch	42		
Expose Head Position	43		
Select Laser Power	46		
Laser to Standby	47		
Plan Film Marks for Next Separation	48		
Vignettes	56	156	256

Description	Command Access	Recall	Store
Image Offset with Border (646 only)	60		
PCR Max Ink %	65		
Load all BVs	199		
Resolution Mode	304		
Overlap Scanning	305		
Autobalance Targets,			
B Patch Storage	502	152	
Luminosity Values	503	153	253
Print Density Values	504		
Grey Balance Window	506		
USM Variables	508	158	258
Line Mode	509		
Pastel Curve	513	163	263
Black Data	514		
Pastel Mode	516		
PCR - Ink Correction Curve	520)		
PCR - Additivity Factor 1	521)		
PCR - Additivity Factor 2	522)		
PCR - 3 Col Under Black	523)		
PCR - Max Blk Percentage	524)	114	214
PCR - Highlight or Shadow Restriction	525)		
PCR - Colour Correction	526)		
PCR - Highlight Col Modifier	527)		
PCR - Highlight Blk Modifier	528)		
Neg Originals	530		
Descreener Mode	531		
Store Job On Floppy (636F Only)	600		
Recall Job From Floppy (636F Only)	601		
Magnaplan Co-ordinate Setting (636F Only)	602		
Magnaplan Expose (636F Only)	603		
EDG Dot Shape	701		
Pos/Neg Dot Selection	702		
86% to 100% Grey Scale	816		
Register Marks	880		
Reverse Text	881		
Slow Traverse Speed	882		

Description	Command Access	Recall	Store
Autoformat On/Off	888		
Text and Register Mark Suppression	889		
Disable Picture Butting	890		
Screen Pitch - Ins or cm	893		
Maxim O/P to Disk	895		
Expose Turret Type Selection	897		
Imperial/Metric Resolution	899		
Analyse Unit Reset (including JVs)	900		
Analyse Unit Reset (including JVs and CVs)	902		
Initialize	940		
Boot 11/21 System (636F Only)	960		
Job Delete Facility (636F Only)	961		
Text Suppression	962		
Software Version	999		

10.4 DENSITY/DOT% CONVERSION TABLE

Density/Dot% Conversion Table - Soft Dot

Integrated Density	Dot% Density	Integrated Density	Dot% Density
0.00	0	0.38	52
0.01	2	0.40	54
0.02	5	0.42	56
0.03	7	0.44	58
0.04	10	0.46	60
0.05	11	0.48	62
0.06	13	0.51	64
0.07	15	0.54	66
0.075	16	0.57	68
0.08	17	0.60	70
0.09	19	0.63	72
0.10	20	0.67	74
0.11	22	0.71	76
0.13	24	0.75	78
0.14	26	0.79	80
0.16	28	0.84	82
0.18	30	0.89	84
0.19	32	0.96	86
0.21	34	1.05	88
0.22	36	1.12	90
0.24	38	1.20	92
0.26	40	1.35	94
0.28	42	1.42	95
0.30	44	1.50	96
0.32	46	1.70	98
0.34	48	2.00	99
0.36	50		

Note: Using this table, it is possible to determine dot% with fair accuracy, using a good densitometer. For high accuracy, a conversion table has to be made, to suit the particular densitometer.

Density/Dot% Conversion Table - Hard Dot

Integrated Density	Dot% Density	Integrated Density	Dot% Density
0.00	0	0.34	45
0.01	2	0.36	56
0.02	5	0.38	58
0.03	7	0.40	60
0.04	9	0.42	62
0.05	11	0.44	64
0.06	13	0.46	65
0.07	15	0.48	67
0.08	17	0.50	68
0.09	19	0.55	72
0.10	21	0.60	75
0.11	22	0.65	78
0.12	24	0.70	80
0.13	26	0.75	82
0.14	28	0.80	84
0.15	29	0.85	86
0.16	31	0.90	87
0.17	32	0.95	89
0.18	34	1.00	90
0.19	35	1.10	92
0.20	36	1.20	94
0.22	40	1.30	95
0.26	45	1.50	97
0.28	48	1.70	98
0.30	50	2.00	99
0.32	52		

Note: Using this table, it is possible to determine dot% with fair accuracy, using a good densitometer. For high accuracy, a conversion table has to be made, to suit the particular densitometer.

10.5 NORMAL/AUTOTYPICAL GRAVURE DOT PERCENT CONVERSION TABLE

Step	Normal %	Gravure %
1	0	0
2	3	2
3	6	5
4	10	7
5	13	10
6	16	11
7	19	13
8	23	15
9	26	17
10	29	20
11	32	22
12	35	23
13	39	24
14	43	27
15	45	28
16	48	30
17	52	32
18	55	34
19	58	36
20	61	38
21	65	40
22	68	41
23	71	44
24	74	46
25	77	48
26	81	50
27	84	53
28	87	55
29	90	57
30	94	60
31	97	64
32	100	66

Note: For working in either Density or Dot%, but in the low range form of Autotypical Gravure (5%-62%), this conversion table will be useful.

10.6 MAXIMUM DISK IMAGE SIZES

10.6.1 Scan-to-Disk

The maximum input image sizes are:

1. Small cylinder:

   All modes - 508 x 317 mm

2. Large cylinder:

   M1 - 508 x 634 mm
   M0 - 508 x 460 mm
   M2 - 508 x 345 mm

10.6.2 Disk-to-Expose

Maximum image sizes (vertical graphics from disk) are:

1. E Units:

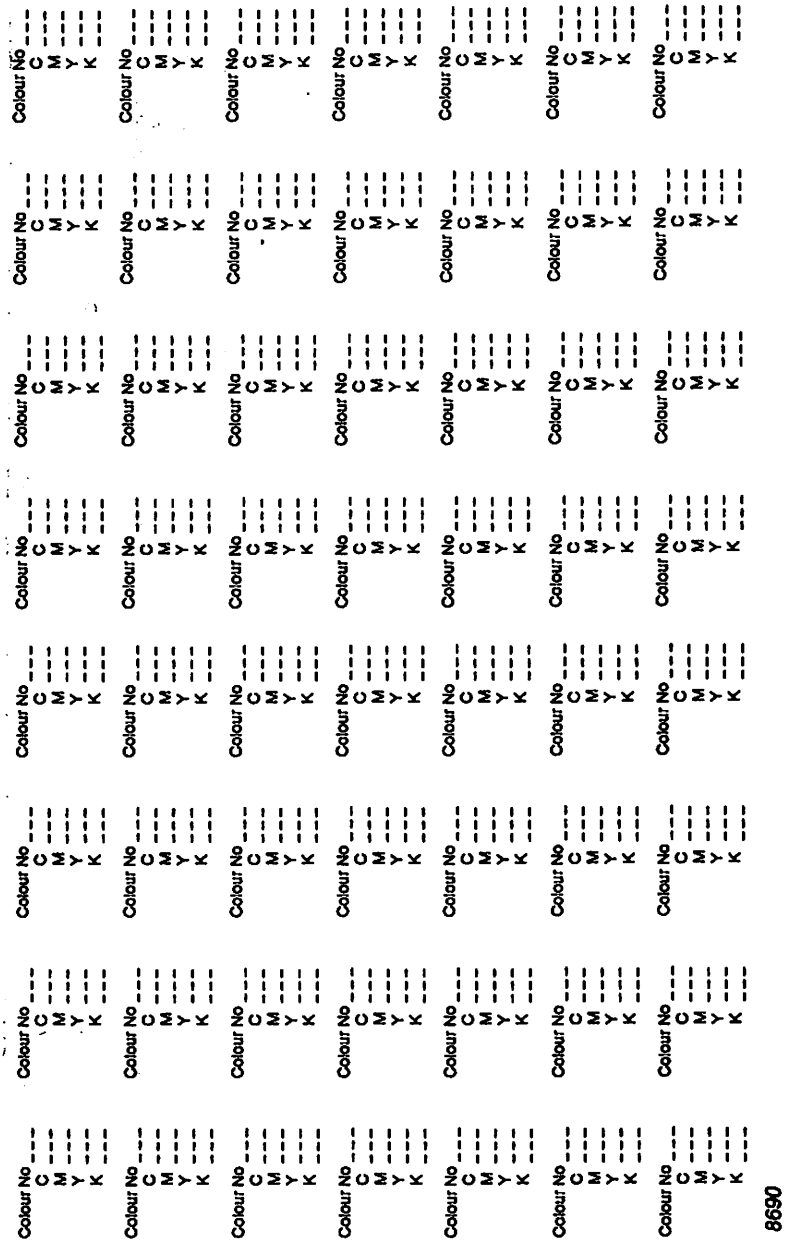
	1@	2 V	4@
Mode 0	632 mm	307 mm	147 mm (with loss of reg. marks)
Mode 1	632 mm	307 mm	145 mm (with reg. marks)
Mode 2	632 mm	307 mm	

1. M Units:

	1@	2 V	4@
Mode 0	918 mm	455 mm	225 mm
Mode 1	1023 mm	485 mm	240 mm
Mode 2	687 mm	340 mm	165 mm

10.7 PRE-PREPARATION SHEETS (646 only)

COLOUR PALETTE - SHEET 1



LAYOUT DATA - SHEET 2

PAGE NUMBER _ _ _ _ TITLE:
DATE:

FORMAT: CORRECT LATERAL REVERSE
SIDEWAYS

BACKGROUND COLOUR _ _ _

FINAL BACKGROUND SIZE
HORIZONTAL SIZE: _ _ _ _ _
VERTICAL SIZE: _ _ _ _ _ _

TINT BLOCK NO. 1
FINAL BORDER WIDTHS (mm) FINAL TINT CO-ORDINATES

ALL _ _ _ _
TOP _ _ _ _
BOTTOM _ _ _ _
LEFT _ _ _ _
RIGHT _ _ _ _

TOP LEFT X _ _ _ _ _
TOP LEFT Y _ _ _ _ _
BOTTOM RIGHT X _ _ _ _ _
BOTTOM RIGHT Y _ _ _ _ _

ENTER TINT OVERLAY PRIORITY _ _ _
ENTER TINT BLOCK COLOUR _ _ _

ENTER BORDER OVERLAY PRIORITY _ _ _
ENTER BORDER COLOUR _ _ _

TINT BLOCK NO. 2
FINAL BORDER WIDTHS (mm) FINAL TINT CO-ORDINATES

ALL _ _ _ _
TOP _ _ _ _
BOTTOM _ _ _ _
LEFT _ _ _ _
RIGHT _ _ _ _

TOP LEFT X _ _ _ _ _
TOP LEFT Y _ _ _ _ _
BOTTOM RIGHT X _ _ _ _ _
BOTTOM RIGHT Y _ _ _ _ _

ENTER TINT OVERLAY PRIORITY _ _ _
ENTER TINT BLOCK COLOUR _ _ _

ENTER BORDER OVERLAY PRIORITY _ _ _
ENTER BORDER COLOUR _ _ _

TINT BLOCK NO. 3
FINAL BORDER WIDTHS (mm) FINAL TINT CO-ORDINATES

ALL _ _ _ _
TOP _ _ _ _
BOTTOM _ _ _ _
LEFT _ _ _ _
RIGHT _ _ _ _

TOP LEFT X _ _ _ _ _
TOP LEFT Y _ _ _ _ _
BOTTOM RIGHT X _ _ _ _ _
BOTTOM RIGHT Y _ _ _ _ _

ENTER TINT OVERLAY PRIORITY _ _ _
ENTER TINT BLOCK COLOUR _ _ _

ENTER BORDER OVERLAY PRIORITY _ _ _
ENTER BORDER COLOUR _ _ _

TINT BLOCK NO. 4
FINAL BORDER WIDTHS (mm) FINAL TINT CO-ORDINATES

ALL _ _ _ _
TOP _ _ _ _
BOTTOM _ _ _ _
LEFT _ _ _ _
RIGHT _ _ _ _

TOP LEFT X _ _ _ _ _
TOP LEFT Y _ _ _ _ _
BOTTOM RIGHT X _ _ _ _ _
BOTTOM RIGHT Y _ _ _ _ _

ENTER TINT OVERLAY PRIORITY _ _ _
ENTER TINT BLOCK COLOUR _ _ _

ENTER BORDER OVERLAY PRIORITY _ _ _
ENTER BORDER COLOUR _ _ _

TINT BLOCK NO. 5
FINAL BORDER WIDTHS (mm) FINAL TINT CO-ORDINATES

ALL _ _ _ _
TOP _ _ _ _
BOTTOM _ _ _ _
LEFT _ _ _ _
RIGHT _ _ _ _

TOP LEFT X _ _ _ _ _
TOP LEFT Y _ _ _ _ _
BOTTOM RIGHT X _ _ _ _ _
BOTTOM RIGHT Y _ _ _ _ _

ENTER TINT OVERLAY PRIORITY _ _ _
ENTER TINT BLOCK COLOUR _ _ _

ENTER BORDER OVERLAY PRIORITY _ _ _
ENTER BORDER COLOUR _ _ _

Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____
Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____
Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways
Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____
Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____
Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways
Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____	Drop-In No __ Top X _____ Y _____ Tint Block No __ Bot X _____ Y _____
Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____	Distortion Allowed Y/N Description: _____
Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways	Lateral Reverse Layout Format: Correct Sideways

10.8 ABBREVIATIONS

ABBREV	: MEANING
AUTOBAL	Autobalance
AN	Automatic Neutralization
AUTO	Automatic Generation
B	Black
BLAK	Black Printer (Block)
BP	Breakpoint /Enter Black
BV	Basic Value
C	Cyan
CAL	Calibrate
CC	Colour Correction
CE	Cancel Entry
CLT	Catchlight
COL	Colour
CST1	Cast 1
CST2	Cast 2
CV	Customer Value
CYL	Cylinder
EB	Enter Black
EDG	Electronic Dot
EW	Enter White
EWEB	Enter White/Enter Black
FORM	Format
G	Green
GBAL	Grey Balance
HL	Highlight Correction
JV	Job Value
LAT REV	Lateral Reversal
LMTS	Limits
LUM	Luminosity
M	Magenta
MT	Midtone
NEG	Negative

ABBREV	: MEANING
NTON	Neutral Tone
OPCAL	Output
ORG	Original
PCR	Polychromatic Colour Removal
POS	Positive
POSN	Position
PSCR	Pastel Boost
PTBS	Permanent Tone Boosts
R	Red
RDY	Ready
REC	Recall
SDT	Scanner Data Terminal
SEP	Separation
SH	Shadow
SL	Slope
UCR	Under Colour Removal
USM	Unsharp Masking
V	Violet
VAC	Vacuum
Y	Yellow